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Really New **Stories**

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Really New **Stories**

The Effect of Early Concept Narratives on
Consumer Understanding and Attitudes

Proefschrift

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“Suppose we get the Professor to tell us a story."

Bruno adopted the idea with enthusiasm. "Please do!" he cried eagerly. “Sumfin about tigers - and bumble-bees - and robin-redbreasts, oo knows!"

"Why should you always have live things in stories?" said the Professor. "Why don't you have events, or circumstances?"

"Oh, please invent a story like that!" cried Bruno.

The Professor began fluently enough. "Once a coincidence was taking a walk with a little accident, and they met an explanation - a very old explanation - so old that it was quite doubled up, and looked more like a conundrum -" he broke off suddenly.

“Please go on!" both children exclaimed.

The Professor made a candid confession. "It's a very difficult sort to invent, I find. Suppose Bruno tells one, first."

Bruno was only too happy to adopt the suggestion.

"Once there were a Pig, and a Accordion, and two Jars of Orange-marmalade -"

“The dramatis personae" murmured the Professor. "Well, what then?"

“So, when the Pig played on the Accordion," Bruno went on, "one of the Jars of Orange-marmalade didn't like the tune, and the other Jar of Orange-marmalade did like the tune - I know I shall get confused among those Jars of Orange-marmalade, Sylvie!" he whispered anxiously.

Lewis Carroll, Sylvie and Bruno Concluded (1893, p. 375-6)

CONTENTS

1

GENERAL INTRODUCTION

Stories are really old and have provided people a simple way of sharing social information and entertainment. Though being really old, stories have up to date value for people and businesses. In general, stories (synonym: narratives) often consist of a beginning, middle, and end, have a (invisible) narrator and tell about one or multiple main characters. These characters have goals and intentions, perform actions, experience events, and come to a resolution in the end. Verbal and/or visual examples of narratives are novels, parables, games, mime, play, and movies. Consumers' appeal of stories is eminent in the entertainment industry. The value of stories for this business is reflected in the annually large amount of successful new titles and remakes.

Firms such as software and consumer electronics manufacturers also widely apply stories during the development and marketing of new consumer products. Here, stories are used throughout the new product development (NPD) process: from the early predevelopment phases before ideation has started until the promotion of the ready to launch product. For example, to understand future users firms study consumers' behaviors and

develop use scenarios and personas to describe the use, contexts, problems and characteristics of the target groups. For the promotion of the final product, narration is used to communicate and educate consumers about the new product through advertising. During development, firms use narratives to create a shared understanding within the development team, optimize user interfaces, and to get feedback from end users on playacted demonstrations of prototypes of the product. Narratives seem to be used a lot during NPD, however, an explanation of the positive effects of narration and guidelines on how to construct these narratives is lacking. Furthermore, the effectiveness of narratives for NPD has not been demonstrated yet.

Narratives are a promising method to test really new products early in the NPD process when prototypes are unavailable to demonstrate. When products are really new, development times are long. Firms, however, desire feedback early on in the NPD process when changes are easy and relatively inexpensive to implement. Really new products use new technologies, require new use and offer new benefits (Veryzer 1998b). As a consequence, consumers possess insufficient product knowledge, which is a prerequisite for currently available concept testing methods such as conjoint analysis. Therefore, the use of current methods leads to validity problems when testing really new products. Narratives seem to be a promising concept testing technique for really new products, as narratives might provide enough information to educate the consumer about the new technology, benefits and use of the new product. Interestingly, if users' stories help designers to understand use problems, user stories should help users understand the designed new product concept. The latter kind of user story would be about a main character who is introduced in the use context of the product, has intentions and

goals, uses the product and experiences the benefits and resolution in the end. When the product concept is really new such stories would be *really new stories*, which are stories about really new products. The aim of the research in this thesis is to study the effects of really new stories on consumer understanding and evaluations of really new products in the early phase of the NPD process. More specifically, this research studies the effectiveness of fiction (i.e., a narrative about a product idea that does not exist yet), seeks to explain the positive effects of narratives in the NPD context, assesses the obtained evaluations with narratives, and examines factors that influence the effectiveness of a really new story, such as the kind of visual or main character.

An explanation of the general effectiveness of fiction in gaining consumer appreciation and attention is provided by social cognition and reading theories (see Boyd 2009; Wyer Jr 2004). Consumers use fiction to understand others and learn about new social situations and behaviors because this gives social advantage: "nothing captures our attention more than the actions of others around us" (Boyd 2009, p. 192). Consumers' cognitive processing can be explained by theory of mind (see Baron-Cohen 1995) – knowing what others desire and belief, and being able to read the other – where consumers mentally mimic the behavior of the main character in the story, infer and deduce multiple meanings from it and put the events in an order that makes sense. This explains why people tend to see a joke and story often in an instant and why people tend to forecast upcoming events in a story. People can feel what others feel and this helps to understand and interpret actions of others, resulting in newly acquired knowledge. Gerrig's (1993) theory of narrative transportation describes the underlying process. When people watch a movie or read a book they can get mentally transported

into the narrative; they have the feeling of being present in that other world and forget the world around them, are emotionally moved and engage with feelings of others. To conclude, consumers are fascinated by fiction because they want to learn from others. They learn by mentally mimicking the behaviors of the others while being "transported" into the world of the other. They experience the actions and events as if they are the main character.

When applying these theories to stories about concepts of really new products, stories could help to transfer the information about the new product, which does not exist yet. People who need to focus on unknown, new things, often do not want to use their cognitive resources. Narratives that naturally evoke the desire to learn from others might be able to overcome this initial hurdle of disinclination towards learning about really new products. Consumers do not understand really new products at first, but they do understand other people. Consumers understand the product in a narrative better through mental imitation of the main character. They engage with the main character in the narrative, and get a vivid image of the use of the final product as if it already exists. By imagining the narrative information, the consumer could obtain a personal experience of the product use to get more familiar with the technology, benefits, and use. It helps the consumer to look ahead and imagine how the product would be beneficial.

The next examples show applications of stories, separated by costs and term benefits (after Boyd 2009). Examples of low cost (i.e., short in length) stories that provide long-term benefits in the form of moral rules of thumb are parables, proverbs, or fables. Low cost stories with immediate benefits would be jokes, short Internet games, or "espresso" stories - complete stories that take no longer to read than an espresso takes to drink. Platform

games would be the high cost counterpart with immediate benefits. Print novels or screen movies that earn short-lived attention would also belong to this category. The Matrix trilogy and Darwin's Evolution of Species would be examples of high cost, long-term benefit stories, because such stories provide food for serious thought. Some general characteristics of these story examples are that they are liked by consumers, often have elements of fiction, portray similarities with personal experiences, and undergo minor changes to attain attention and appeal over time.

One characteristic of narratives is consumers' favorable attitude towards them. However, removing a natural disinclination towards really new products with the use of early concept narratives should result in realistic evaluations with predictive validity to be valuable for NPD. The other three characteristics of narratives – fiction, real life similarities, and minor adaptations over time are also present in early concept narratives. The product in the story is a future possibility, in general, people are aware of the fact that stories contain elements of fiction - even children know that what is followed by "once upon a time" will not be followed by real world events only. Similarities with consumer's personal experiences, such as a familiar context, are also present in early concept narratives. Finally, while the new product develops from idea and concept into the final product, the product developer needs to update the really new story. The essence of the idea remains present, while the updates will strengthen the story and product proposal.

The costs and term benefits of early concept narratives can be used to underscore their practical implications. An early concept narrative is a relatively short and easy to construct low cost narrative that can provide immediate benefits to the consumer and long-term benefits to the firm's NPD project. Consumers receive new product information in a way that fits their way of

processing information, which should facilitate understanding of the new product. Long-term benefits are present for firms, because early concept narratives provide the NPD project valuable input from consumers. Furthermore, they might serve as an education and communication mechanism for the firm throughout and after the NPD project.

The studies in this thesis contribute to narration, NPD, and social identity theories by demonstrating the positive effects of narrative transportation on consumers' product evaluations (Chapter 3, and 4) and comprehension (Chapter 5). In addition, this thesis shows the effects of elements of a narrative that are relevant for the NPD context (i.e., different kinds of visuals (Chapter 2) and main characters (Chapter 4)) that could strengthen or weaken the effectiveness of narratives (i.e., elicit more or less narrative transportation). Finally, this thesis shows first evidence of consumer learning and understanding through narratives (Chapter 5) and investigates and confirms the validity of a narrative evaluation through comparisons with non-narrative evaluations and evaluations of prototype demonstrations (Chapter 3).

In the next paragraphs I will provide an overview of the studies that are reported in the chapters of this thesis. The order in which I present the studies goes from visual formats to prototypes to protagonists to expertise. Narrative transportation is present in every study. This series enabled us to examine narrative transportation under different conditions and improve our understanding of the effectiveness of narratives for early concept testing. This research was done in collaboration with my promotors, copromotor, other colleagues, and firms. Therefore, I use the term "we" and not "I" when I refer to the authors of the empirical chapters (Chapters 2-5). Chapter 2, 3, and 5 are single

study chapters, whereas Chapter 4 describes three studies. The general discussion follows the empirical chapters in Chapter 6.

Chapter 2: Narratives and visuals. This study provides an overview of extant literature about concept testing. Further, it studies the effects of various kinds of visuals that can accompany a new product narrative on narrative transportation and on multiple measures that indicate the value of the obtained customer input, such as new product comprehension. The level of realism of the visual (i.e., the level of real life representation) is intuitively expected to enhance the value of customer input. However, the popularity of, for example, comic books, learns that realistic images might not be needed for transportation to occur. Thus, this study is the first to test the level of realism needed within a narrative that is used as concept presentation. Interestingly, this study demonstrates that consumers experience higher levels of narrative transportation through narratives with drawings or photos than through an animated sequence of the storyline (i.e., a movie of photos in which the interactive elements of the new product were animated).

The research was conducted in close collaboration with a multinational firm. This chapter takes the perspective of a firm and describes the practical applicability of narratives in early concept tests of applications of radically new technologies. The problems of firms that desire early input on their new product ideas are the central point of argumentation.

Chapter 3: (Non-)narratives and product prototypes. The study in this chapter describes a follow up of the study in the previous chapter. The multinational firm built a prototype of the application that represents the next step in their new product development process. With the product prototype as a benchmark, Chapter 3 aims to demonstrate the predictive

validity of the early-obtained new product evaluations through narratives.

The study compares prototype evaluations with evaluations of narratives and non-narratives, while controlling for possible other differences (such as physical presence, self pacing, and level of realism of the concept presentation). Evaluations only deviated from the prototype evaluation in the non-narrative condition. The narratives are presented with drawn images. Interestingly, the narratives did not depend on realistic visuals, supporting the findings of the previous chapter. Narrative transportation was present in this specific type of short narratives and mediated the results. Thus, valid evaluations were obtained with narratives with drawn images, while narrative transportation compensated for a decreased level of realism in the visuals.

Chapter 4: (Non-)narratives and protagonists. The three studies in this chapter focus on an essential element of a narrative, the protagonist (i.e., the main character). The protagonist is important, because a protagonist gives a narrative structure and unity. This chapter builds on the previous chapter by replicating the positive effect of a narrative (versus non-narrative) on transportation and product evaluation, while the protagonist is added as a moderating variable. The first study demonstrates that (dis)similarity between the protagonist and the reader moderates the effect of (non-)narrative information on narrative transportation and product evaluations. In a non-narrative format, no effect of a reader-protagonist (dis)similarity is present, while in a narrative a protagonist who is more dissimilar to the reader produces a negative effect on transportation and resulting product evaluation. Furthermore, Study 2 and 3 in this chapter provide strategies to mitigate the negative effect of a dissimilar reader-protagonist in a narrative.

Thus, levels of narrative transportation and product evaluations differ depending on the kind of protagonist and this chapter provides guidelines about how to use the protagonist in an early concept narrative.

Chapter 5: Narratives and expertise. The fifth, and final empirical chapter in this thesis demonstrates that narrative transportation moderates the effect of consumer expertise on new product comprehension. Expert consumers understand a new product better than non-experts. However, narrative transportation mitigates this effect. Consumer comprehension is an important prerequisite for concept testing, and interestingly, non-experts and experts show similar levels of product comprehension when narrative transportation is high.

Chapter 6: General discussion. This thesis ends with a general discussion and suggestions for future research. Furthermore, I will share some best practices on how to design really new stories.

Chapter 2 is based on: Van den Hende, Ellis A., Jan P.L. Schoormans, Kaj P.N. Morel, Tatiana Lashina, Evert van Loenen, and Erik I. de Boevere. Using early concept narratives to collect valid customer input about breakthrough technologies: The effect of application visualization on transportation Technological Forecasting & Social Change 74 (2007) 1773–1787.

Chapter 2 provides an overview of extant literature about concept testing. Further, it studies the effects of various kinds of visuals that can accompany a new product narrative on narrative transportation and on multiple measures that indicate the value of the obtained customer input, such as new product comprehension.

2

NARRATIVES AND VISUALS

INTRODUCTION

Early customer input and technology forecasting contribute to successful new product development (Coates et al. 2001; Cooper 2001; Lilien et al. 2002). In fact, customer input plays a central role in established market research methods for forecasting the success of incremental innovations. When technological breakthroughs are involved, however, technological forecasting based on customer input is problematic (Veryzer 1998b). In line with Veryzer (1998b), a breakthrough technology, also termed radical or high-tech innovation here, is defined as a product which involves dramatic leaps in terms of (1) the product benefits it offers; (2) the technological capabilities it provides; and (3) customers' consumption patterns. That is, a product can be regarded as a technological breakthrough when it satisfies needs that were not satisfied before, when it performs functions in ways that did not yet exist, and when it requires customers to radically change their way of thinking about the product and using it. The key problem is that collecting valid customer input about technological breakthroughs is practically impossible. This is due

to the fact that customers are generally unable to accurately understand the functionality and benefits such radical innovations provide. Without a thorough understanding of the innovation and its potential benefits, customers are likely to evaluate it too negatively. That is, more negatively than they would do if they had understood the innovation. When this happens, innovation is frustrated (Hoeffler 2003), because potentially great technological innovations are not recognized as such by customers, which often leads to premature and unwise termination of their development. For example, if customers are asked to evaluate a technological breakthrough like spray-on solar-power cells (Lovgren 2005), most of them will not have a clear picture what they are evaluating. They are unable to tell what the potential benefits and risks of this breakthrough are. As a result, they will probably discard this breakthrough technology as science fiction that is not interesting for them.

Customers' inability to understand technological breakthroughs is directly related to the novelty of such innovations and their supporting technologies, and to the lack of reference to existing products. Customers simply cannot imagine what the innovation is all about (Tauber 1974). Two obvious solutions to this problem come to mind immediately. If customers do not understand what the innovation is about, one could either explain it to them, or one could look for customers that do understand the innovation. To start with the latter, product developers and market researchers have often turned to expert users, or so-called lead users (Von Hippel 1986) to collect early customer input. The rationale behind this approach is that lead users, in contrast to the average customer, are believed to be able to evaluate technological breakthroughs and to imagine their potential benefits. They are able to do this, because they are well ahead of market trends and have needs that go far beyond those of the average user. Lead users often come up with their

own solutions to their hitherto unsatisfied needs. However, there are three possible problems with using the input of lead users to forecast the success of technological breakthroughs. First, expert users tend to be over-optimistic about the market chances of innovations (Tichy 2004). Second, lead users might not be representative for the average customer; their needs might never become the needs of the majority of the customers. Third, lead users are generally hard to find.

Thus, although the lead-user approach has proven to be valuable (see von Hippel, Thomke, and Sonnack 1999), market researchers would also need to collect early customer input regarding high-tech innovations by simply explaining to customers what the innovation is first, and then ask them to evaluate it. In order to do so, it is necessary to explain to customers not only what the technological breakthrough is, but also what new functionality and benefits it offers. But as our example of the spray-on solar-power cells has illustrated, customers cannot evaluate a breakthrough technology as such; they can only evaluate the breakthrough technology if it is first translated into a concrete application. In the case of spray-on solar-power cells, such a concrete application would be a sweater coated in the material that could power a cell phone or other wireless devices. Customers would be able to evaluate the solar-power sweater, because it is much easier for them to see what its potential benefits and risks are.

In short, we propose in this chapter that a focus on the applications of breakthrough technologies rather than on the breakthrough technologies themselves can close the gap between technology foresight and market research. An application of a technological breakthrough is defined as a fulfillment of a potential need of customers (e.g., powering their mobile devices with their apparel). Applications are seen as important elements of the future of technological forecasting, as Coates et al. (2001,

p. 4) state: "The applications of new technology, rather than invention per se, is the payoff for technology foresight, and this requires understanding of many organizational, market and social factors." Furthermore, we propose that the best way to explain applications of breakthrough technologies to customers is through the use of early concept narratives. In this chapter we will explain what early concept narratives are, how they can be used to explain high-technology applications to customers, and why they are effective to collect early customer input regarding high-tech innovations. We will present an experiment that was carried out in cooperation with an electronics company in which the effectiveness of three different visual presentation formats of an early concept narrative was examined. The results from this experiment have several practical implications for market research into technological breakthroughs that we will discuss in the final section of this chapter.

THEORETICAL BACKGROUND

Presenting high-technology applications to customers: The early concept narrative

Once an application has been defined, it needs to be presented to customers. In the case of our solar power sweater, one straightforward and relatively simple way of presenting it to customers is to describe it in terms of appearance, functionality, and benefits. It will not be that simple for customers, however, to actually imagine the benefits of the sweater on the basis of a description only. For example, how will they know if the sweater is comfortable and not too warm? A second, much more sophisticated way of presenting the sweater to customers is to have them try on a prototype. Obviously, this requires that the sweater prototype has already been developed. This is typically not the case, though. In the early development phase of a

breakthrough technology innovation, the new technology either does not exist yet, because it is not (yet) fully operational, or it would be too costly to develop a prototype. Nevertheless, companies need the early input regarding the possible value of an application and regarding the direction into which an application should be developed. In order to be able to provide valid input, Klink and Athaide (2006) argue that customers should receive as much stimulus material as possible that reflects the kind of information that would be available in the market place. All of these mean that a presentation method is needed in which applications of technological breakthroughs can be presented to customers before they have been developed in detail.

An important characteristic of such a presentation method should be that it stimulates customers' imagination. That is, the method should incite customers to imagine the future value of the high-tech innovation. Early concept narratives, a specific type of future product scenarios, are particularly promising in this respect. Specifically, an early concept narrative is a description and/or depiction in which someone uses a new product (concept) in a specific setting. It includes the usage situation of the product, its benefits, and its attributes. It often takes the form of a story in which a customer uses the new product in a future setting, following a classic storyline with an introduction and an ending. The story can also be accompanied by visual material that shows various design aspects of the product and its anticipated environment. In doing so, narratives evoke imagery (Gerrig 1993); customers can imagine a technology and its potential benefits by seeing it applied in a product that makes the use explicit. In our example, such a narrative would describe/depict a day from the life of the main character of the narrative (for instance, Helen), who uses the solar-power sweater to charge her cell phone while cycling to

work, to charge her PDA during a meeting, and to power her MP3 player while jogging through the park after work.

The strength of the early concept narrative method is that it helps customers to look ahead and imagine how the new product could be beneficial to them, even when there is no actual product or prototype available, when customers are lacking knowledge about the innovation, and when they are experiencing great uncertainty about the breakthrough technology and its applications. Some companies have understood the potential of early concept narratives and are using them to explain their new products. Vodafone (www.vodafone.com), for instance, has a future section on its website, telling a story and animating several possibilities of their future technology. This enables their customers to look ahead, to visualize concrete contexts in which the new technology can be used, and to think about potential consequences of the new technology for daily life. Early concept narratives are proposed to be effective because they stimulate customers to visualize the situation described in the narrative, which enables them to give valid product judgments. Indeed, previous research supports the claim that the use of visual imagery in market research causes customers' responses to be more valid in the face of uncertainty. Several studies have shown that the evoked visual imagery can support a customer's product evaluation and make it less negative (Dahl and Hoeffler 2004; Hoeffler 2003; Koehler 1991; West, Huber, and Min 2003). For example, Hoeffler (2003) showed that when customers lack experience and knowledge about a new product's attributes and benefits, they can use mental simulation (i.e., imagination) to make inferences about these uncertain attributes and benefits in order to predict the innovation's utility. He also found that the preference for a really new product that was based on mental simulation was consistent with the preference for the new product that was based on actual product trial. This final finding

suggests that it is possible to obtain valid customer responses about high-tech innovations early in the product development process by using imagery that is evoked by early concept narratives in market research.

Transportation in early concept narratives

From the previous section it can be concluded that the effectiveness of early concept narratives depends on the degree of imagination that is elicited by the narrative. If customers are more absorbed by the narrative, imagining more elaborately what the high-tech innovation could mean to them, they will provide more valid product evaluations afterwards. The degree of absorption into the narrative world is coined transportation. This term is conceptualized by Green and Brock (2000, p. 701) as "a distinct mental process, an integrative melding of attention, imagery and feelings." Transportation was originally described by using the metaphor of a traveler, going some distance from the world of origin, making some aspects of that original world inaccessible and returning to the world of origin somewhat changed by the journey (Gerrig 1993).

When transportation occurs, people become fascinated by the story outlined in the narrative, pay less attention to their surroundings, and are less distracted. So, if customers get transported when reading an early concept narrative, they might be better able to shrug off the uncertainties connected with the innovation described in the narrative because the possibilities of the new product show themselves in an ordinary way. As argued earlier, this should result in evaluations of high-tech innovations with high predictive validity; these evaluations should not be very different from those that people would have made if they had been able to evaluate (a prototype of) the actual innovation (as we will show in Chapter 3). In other words, if transportation

takes place, early concept narratives can be used to accurately picture the value of an application of a breakthrough technology.

Transportation is more likely to take place when the early concept narrative clearly explains the high-tech innovation, because people need to understand what they are reading (Green 2004). The degree of clarity of an early concept narrative explaining an innovation could depend on the degree of realism of the early concept narrative. Realism in the context of customer research refers to the portrayal of objects as they are in actual purchase and usage situations (Loosschilder and Ortt 1994). So, the better the early concept narrative is able to present a real-life picture of a high-tech innovation, the greater the likelihood is that customers get transported into the narrative, and the better they will be able to provide valid product evaluations.

From a practical perspective, then, it is important to create early concept narratives that are as realistic as possible. In practice, all imaginable types of formats of early concept narratives are being used, from text to full-fledged films (Grudin and Pruitt 2002). As explained above, the most realistic early concept narrative would be one that presents a picture of how the radical innovation can be used that is as similar as possible to the situation in which the customer would use the innovation in real life. It could be that this real life experience does not depend on the degree of realism of the visuals that accompany the narrative, because narration itself could elicit a ceiling effect of real life experience (for example, narrative transportation is present when reading books without pictures, and also with comic books).

However, in this chapter we posit that an early concept narrative in the form of a movie is best able to capture real-life usage. The basis for this claim is that film is the most suitable medium to capture the real-life human–product interactions

that are particularly relevant when the narrative concerns an application of a breakthrough technology that (per definition) offers new ways of product usage. So, whereas film would be the preferred format type for early concept narratives in terms of realism, the development of such narratives is not always feasible in terms of time, money and effort. When this is the case, alternative visualizations such as animation, pictures, or drawings can be used. People who are confronted with static rather than moving images are generally capable of imagining a story line and filling out the gaps in it. For instance, people appear to have no problems at all with reading comics about virtual worlds. If static visualization formats are used, earlier research of Loosschilder and Ortt (1994) suggests that they too should be maximally realistic. They showed that higher degrees of realism of static visualization formats lead to more valid research results; photo quality concept evaluations possessed higher validity than evaluations of CAD representations of the same concept. To examine the question about presentation format type in early concept narratives more substantially and to study both the effect of static versus dynamic formats, the study that will be presented next tested the effect of three different types of application visualizations in an early concept narrative on transportation. The different format types that were examined are a drawn visualization, photorealistic visualization, and an animated sequence of the story line. In each narrative the same description of the high-tech application and its potential use was given. The three narratives differed only with respect to the way the application is depicted. Based on the argumentation presented above, we predicted that transportation would be strongest for the animated sequence and weakest for the drawn visualization. More formally, the following hypotheses were tested:

H1a. Transportation will be stronger when customers evaluate an early concept narrative in the form of a photorealistic visualization than in the form of a drawn visualization.

H1b. Transportation will be stronger when customers evaluate an early concept narrative in the form of an animated sequence than in the form of a photorealistic visualization.

METHOD

The experiment was conducted in close cooperation with a pre-development department that often uses early concept narratives for breakthrough technologies. For the breakthrough technology concerned here, around twenty applications were ideated, as is common with the early concept narrative method. Some of these applications were quite similar, some were more futuristic, and some required additional technologies to be developed. The experiment reported here concerned the test of three different types of format of the same early concept narrative about one high-tech application selected from the larger pool of ideated applications. Participants to the experiment were presented with an early concept narrative that consisted of a description combined with visual presentations of the application. The early concept narrative describes the behavior of Jack, a customer who is shopping for an MP3-player in an electronics store. He is comparing different products. During this process, Jack is using a totally new application of a breakthrough technology. The application is an interactive display in a cabinet that assists customers in shops to obtain information on products they are considering. It can also

provide product comparisons based on their specifications. This application is innovative because when the display is switched off, it becomes completely transparent, comparable to an ordinary window. In the narrative, we see Jack switching on the interactive screen that consequently provides him with all kinds of information about different MP3 players that are displayed in the store. As noted earlier, three different types of visual presentations were created as stimulus material for the experiment: drawn visualizations, photorealistic visualizations, and an animated sequence of the story line. The different visual presentations were created as follows. First, from photographs of a user in a shopping situation drawings were made by tracing the lines and adding color to the surfaces. Next, the elements of the interactive display (lights and interface) were inserted into the pictures and drawings. Finally, on the basis of the photos, an animated version of the storyline was created, in which the interactive elements, such as the lights and interface, were animated. Every participant received only one type of visualization in our between subjects design. We refer to these three conditions as drawing, photo, and animation. To get an impression of what these different visualizations looked like, Appendix A shows them, but for a different early concept narrative than the one used in the current study[1].

Participants

A total of 173 members from a non-student customer household panel were approached to participate in the experiment of which 109 (57 female, 52 male) actually participated (response rate of 63%). To represent potential users of interactive displays, participants were selected based on age

[1] Due to reasons of confidentiality, the visuals that were used for the early concept narrative examined in the study cannot be shown.

and education (25–50 years old, middle and high level of education). Participation was voluntary and rewarded with a small financial compensation of about 2 euros.

Procedure

Data were collected through an Internet questionnaire survey. Invitation e-mails with a personal hyperlink were sent to each participant. The questionnaire started with questions assessing gender, prior knowledge of the featured technology (i.e., interactive displays) and of the product domain (shopping behavior). These questions were included as control variables. Next, the narrative was presented in one of the three presentation formats. Participants read and watched the narrative at their own pace after which they filled out a set of questions on transportation. Next to narrative transportation, we included three measures to obtain input on the value of the customer input. We measured new product comprehension, informativeness of the narrative and perceived level of realism to evaluate the value of the customer input of each presentation format. The questionnaire took approximately 30 min to complete. After having completed the questionnaire, participants were thanked and debriefed and received their financial compensation in the form they chose (i.e., donation to charity or stamps).

Measures

All variables were measured by means of 7-point Likert-type scales. Transportation was measured using seven items (Cronbach's alpha = .70) adapted from Green and Brock (2000) and referred to the degree to which people imagine themselves in the story and feel that they are being absorbed in the story: e.g., I could picture myself in the scene of the events described in the text, not at all/very much. Next to narrative transportation,

we included three measures to evaluate the value of the obtained customer input (i.e., new product comprehension, informativeness of the narrative and perceived level of realism). To assess whether the different presentation format types had an effect on participants' levels of comprehension of the high-tech application featured in the narrative, participants filled out 24 true/false items. Some examples are: According to the narrative, using the interactive cabinet helps to get you a discount (false), According to the narrative, the interactive cabinet allows you to read your email (false), or The interactive cabinet allows you to compare product specifications (true). Participants could score minimally zero and maximally 24 on this measure. Participants were asked to indicate on a 5-items scale (Cronbach's alpha = .88) to what extent the narrative was informative about the interactive display and its benefits: e.g., Knowing what you know now from the narrative, to what extent are you able to evaluate the interactive display, not at all/very much. Participants indicated whether they believed that the early concept narrative was realistic on a single item: Please indicate how certain you are that the interactive display will perform the same in real life as in the narrative, very uncertain/very certain.

Two covariates were included in the questionnaire. Knowledge of displays was measured by two items, after a short clarification about interactive displays that are currently present in public places (r = .77) e.g., In general, how much do you know of all kinds of different interactive displays, nothing at all/very much. Shopping behavior was assessed by means of a 4-items scale (Cronbach's alpha = .67) of which a typical item was: I usually compare electronics before I buy them, strongly disagree/strongly agree.

RESULTS

The two covariates were included in all analyses reported below, hence we report ANCOVAs. Unless noted otherwise, no significant effects were found for the covariates. To test our hypotheses we conducted an ANCOVA with presentation format type as the independent variable and transportation as dependent variable. For transportation the effect of presentation format was significant ($F(2,103) = 4.49$, $p < .05$), as well as the effect of the knowledge of displays covariate ($F(1,103) = 4.56$, $p < .05$). Pair wise comparison tests with Bonferroni adjustment for multiple comparisons showed that both the difference between the drawing and animation conditions and between the photo and animation conditions were significant (drawing vs. animation: mean difference = .53, $p < .05$; photo vs. animation: mean difference = .45, $p < .05$). In other words, transportation was equally strong for the drawing (M=4.43) and photo format (M=4.35), but stronger for both of these format types than for the animation format (M=3.90). Thus, based on the transportation results both Hypothesis 1a and Hypothesis 1b need to be rejected. More specifically, regarding Hypotheses 1b the results showed the opposite effect.

To assess the value of the obtained customer input, the degree to which participants comprehended the interactive display was measured. The mean scores for this variable are also presented in Table 2.1. These numbers show that comprehension was high in all conditions. The overall mean correctness of the 24 true/false items was 22.64, with a minimum score of 19. The differences between comprehension in the drawing condition (M = 23.00), photo condition (M = 22.54), and the animation condition (M = 22.38) did not reach significance ($F(2,103) = 2.09$, $p > .13$).

Table 2.1 Means and F-Values for Transportation and Value of customer input

	Visual format of application				
	Drawing N=22	Photo N=40	Animation N=47	Overall mean	F-Value
Transportation	4.43 (.18)	4.35 (.13)	3.90 (.12)	4.23 (.08)	4.49*
Value of customer input					
Comprehension	23.00 (.25)	22.54 (.19)	22.38 (.17)	22.64 (.12)	2.09
Narrative informativeness	5.21 (.24)	4.91 (.18)	5.01 (.16)	5.04 (.11)	0.49
Narrative realism	4.01 (.33)	4.18 (.25)	4.33 (.22)	4.18 (.16)	0.34

*$p < .05$, standard errors are in parentheses

Thus, irrespective of the type of presentation format of the narrative, participants understood the interactive display very well. The significant effect found for the shopping behavior covariate ($F(1,103) = 3.93$, $p < .05$) indicates that participants' comprehension of the interactive display was affected by their present shopping behavior ($r = .22$, $p < .05$). Those participants whose need for electronics information during shopping for electronics resembled that need of Jack in the narrative comprehended the interactive display better.

Additional ANCOVA analyses on the second and third diagnostic measure of the value of customer input showed that the visual format of the early concept narrative application had no significant effect on the perceived realism of the narrative ($F(2,103) = .34$, $p > .71$). Overall, participants were pretty certain ($M = 4.2$) that the interactive display would work the same in real life as it was described in the narrative with visual support. The informativeness of the narrative did not differ significantly across presentation format types ($F(2,103) = .49$, $p > .62$). The mean was 5.2 on a 7-point scale, which suggests that the narrative communicated the benefits of the interactive display well. To conclude, our results show that transportation was strongest for the drawn and photo realistic visualizations and weakest for the animated sequence of the story line. The results for comprehension, narrative realism, and narrative informativeness show that all tested early concept narratives, regardless of the visual format of the applications, were capable of making participants understand the possibilities of the application. Moreover, participants evaluated all three narratives as realistic and indicated that they communicated the innovation's benefits clearly.

DISCUSSION AND MANAGERIAL IMPLICATIONS

We started this chapter with the observation that collecting valid early customer input about technological breakthroughs is problematic because customers are generally unable to truly comprehend the functionality and potential benefits of such radical innovations. We proposed that this problem could be successfully tackled by presenting customers with early concept narratives in which a particular application of the breakthrough technology is explained. Early concept narratives stimulate customers' imagination and incite them to think about potential benefits of the high-tech application by presenting a possible scenario in which the innovation is used. The outcome of this process is believed to be that customers get a more realistic image of the breakthrough technology and its potential benefits as a result of which they will be able to make more accurate (i.e., valid) evaluations. We further proposed that in order for an early concept narrative to be effective, customers need to be absorbed in it to a certain extent, that is, transportation needs to take place. In other words, the narrative needs to strike the experience of the subjects (Green 2004). The results of our experiment show that transportation into the early concept narrative did indeed take place; the average level was above the midpoint of the scale. Furthermore, our participants found the narrative realistic, also the narrative presented with drawings; they believed that the interactive display as it was described in the narrative could work in real life.

A key aspect of early concept narratives, and an important point we want to stress here, is that they describe a concrete application of the breakthrough technology rather than the technology itself. This is important because it will stimulate customers' transportation and it will help them to imagine potential benefits of the breakthrough technology. Thus, to

create an early concept narrative, the breakthrough technology should be 'translated' into a concrete application and usage situation. More generally, we believe that the use of concrete applications in customer research could be highly effective to close the gap between technological breakthroughs and customers. Indeed, we found that participants' comprehension of the interactive display that was featured in the narrative was high. Participants also indicated that the narrative clearly communicated the potential benefits of the interactive display.

These results were of course affected by the specific application that was used in the experiment. Out of the set of ideated applications we chose this particular application because its benefits were believed to be clear for most customers. One of the main characteristics of this application of the interactive display in an electrics store is that it relates quite well to the shopping experiences of customers. This was important because we wanted participants to our experiment to have at least some expertise about the product category (Schoormans, Ortt, and De Bont 1995). Nevertheless, differences in shopping behavior for electronics had a significant effect on their comprehension of the interactive display. This finding suggests that during the development of applications companies should focus on customer behavior and needs that are not so completely new that customers cannot relate to it. In this respect, Martin (2004) suggests that the customer's background is important for a better understanding of the evoked imagery, as imaginary situations are often formed based on past memories. If, in the creative process of developing an application, it is not possible to connect to the existing behavior of customers, it could be difficult to define applications that can be used in customer research. In Chapter 5 we will further examine the relationship between prior experience with needs and new product comprehension, by

identifying narrative transportation as a moderating variable of this relationship.

As noted before, it is of the utmost importance that transportation occurs before customers evaluate an application of a breakthrough technology that is described in an early concept narrative. If transportation is too low, the validity of the customers' evaluations will suffer. Therefore, companies that consider using early concept narratives should pay a lot of attention to the development of the narrative. The narrative should describe a person using a specific application in a particular context in such a way that customers in a research setting can imagine themselves actually using the application. In this respect, the importance of pre-testing the transportation levels for a particular early concept narrative before it is used in market research cannot be emphasized enough.

Early concept narratives usually consist of a combination of a verbal description and a visual presentation of the innovative application and its use. As far as we are aware, companies use all sorts of different visual presentations, from simple drawings to flashy movies. In this experiment, we examined the effect of three different visual presentation formats (drawing, photo, and animation) on customers' reactions towards the high-tech innovation featured in an early concept narrative. We expected that the narrative format with the highest level of realism, the animation, would elicit the highest transportation and comprehension levels. The results, however, showed the opposite; transportation and comprehension were highest in the drawing condition and photo condition. How can this result be explained? A first explanation could be that customers can more easily process information with respect to the application featured in the narrative if they are able to define their own pace of studying the narrative and are not forced to follow the pacing of an animated concept. A second explanation has to do with the

level of detail and complexity found in the drawing format versus the photo and animation formats. Highly-detailed visuals may increase the level of realism, but at the same time, they may also draw customers' attention away from the main benefits of the application. The purpose of this customer research is to gain insight into potentially interesting applications of a breakthrough technology. We believe that too much attention for detail in this kind of customer research should be avoided, as the details of the application are less relevant than the more global ideas behind the application. Good animations are more difficult to make and run the risk of becoming too complex. Therefore, we advise companies that wish to include visuals into their early concept narratives for radical innovations to use relatively low-detailed visuals such as simple drawings. Functionality details can be mentioned in the narrative, instead of being depicted. An additional advantage of such a strategy is that the narrative can be developed quite easily, fast, and at lower costs.

The breakthrough technology that was studied in our experiment concerned an innovation for the relatively short term. One could wonder whether the use of early concept narratives would also work for breakthrough technologies that will enter the market in 10 to 20 years, for example. In principle, we do not see any reasons why early concept narratives could not be developed for such future innovations. As a matter of fact, many science-fiction movies contain examples of such futuristic early concept narratives where they deal with new technologies such as space ships, laser guns, and human transportation by means of beams. As the host of science-fiction related Web sites indicate, people seem to have little difficulty with getting transported into these stories and articulating themselves about these technologies (e.g., www.startrek.com, www.starwars.com). The problem from the perspective of market researchers and

companies is of course how realistic these futuristic narratives will turn out to be. This study has given a first indication of the potential value of early concept narratives describing an application as a method in closing the gap between breakthrough technologies and the market. Although various methods for collecting customer input exist (for a review of often used customer research methods, see Van Kleef, Van Trijp, and Luning 2005), only concept testing with expert-users seems to be a serious alternative for the early concept narrative approach (we will examine the expertise and early concept narratives in Chapter 5). The starting point for both methods is a concept of a breakthrough technology application, and not a blank sheet as is the case for other early customer research methods, such as the Delphi-method (Linstone and Turoff 2002), emphatic design (Leonard and Rayport 1997), customer idealized design (Ciccanteli and Magidson 1993), laddering (Reynolds and Gutman 1988), and ZMET (Zaltman 1997). These methods have all been developed for the purpose of revealing customer needs, not for testing new product concepts. Thus, having customers evaluate early concept narratives constitutes a form of concept testing rather than idea generation. As such, the use of early concept narratives as a means to collect early customer input about technological breakthroughs appears to be a valuable alternative to concept testing with experts, such as lead users, The big advantage, of course, is that in contrast to expert customers, 'standard' customers are much easier to find.

Chapter 3 is based on Van den Hende, Ellis A. and Jan P.L. Schoormans, The story is as good as the real thing: early customer input on product applications of radically new technologies. Accepted for publication in the Journal of Product Innovation Management.

The study in Chapter 3 demonstrates the predictive validity of the early-obtained new product evaluations through narratives. The study compares prototype evaluations with evaluations of narratives and non-narratives, while controlling for possible other explanations (such as physical presence, self pacing, and level of realism of the concept presentation).

3

(NON-)NARRATIVES AND PRODUCT PROTOTYPES

INTRODUCTION

Discontinuous new products are products that feature a radically new technology, require new usage patterns, and offer new benefits to the user (Veryzer 1998b). Examples of discontinuous new products that are currently on the market include digital book readers with e-ink technology and GPS navigators with interactive screens. The early integration of market and technology knowledge in new product development (NPD) processes contributes to the success of discontinuous new products (Crawford and Di Benedetto 2008; O'Connor 1998; O'Connor and Veryzer 2001; Veryzer 1998b). Early market knowledge helps focus the NPD process on the right product application at an earlier moment, generally saving costs and time. An important type of market knowledge is input from customers, because customer input increases the fit between the discontinuous new product offer and the needs of the customers in the market. In the present study, customer input is defined as information about needs and preferences that is provided by end-users to firms (Fang 2008; Lengnick-Hall 1996). Firms make

extensive use of widely recognized customer research techniques to collect early quantitative customer input on incrementally new products (e.g., conjoint studies on new coffee machines or vitamin waters). However, the incremental NPD process is very different from the discontinuous NPD process, and firms therefore do not benefit from the present customer research techniques (Hoeffler 2003; Lynn, Morone, and Paulson 1996). We present a customer research technique that can be used in the predevelopment phase of a really new product.

Compared to an incremental NPD process, a discontinuous NPD process typically involves higher technological uncertainties and longer development times (O'Connor 1998). Specifically, predevelopment takes much longer; the development phase is commonly preceded by five to ten years of technology development. According to Veryzer (1998a), the typical activities firms engage in during the predevelopment phase are establishing technology feasibility, exploring possible applications of the technology, converging toward the most promising technology application, formulating requirements, and, finally, evaluating the technology application in a formal screening. After the screening, product formulation takes place and the development phase of the discontinuous NPD process starts. This second phase of the discontinuous NPD process has more in common with an incremental NPD process, including prototype building and customer involvement.

In addition to high technological uncertainty and long development times, the discontinuous NPD process involves high uncertainty about market value. The potential market value of the product application is uncertain since the distance from the market in terms of time and customer familiarity is large (Veryzer 1998b). Firms often postpone input from customers (i.e., end users) to the development phase. In the predevelopment phase, it is a challenge to explain a technology

application to a (novice) customer because real-life prototypes have not as yet been completed for demonstration purposes. Prototypes are ready late in the discontinuous process, at which point they can be used to familiarize the customer with the unknown product application. Realistic prototype demonstrations help customers to understand the potential benefits and use of the new technology because real-life prototypes contribute to the vividness of the product experience (Urban, Weinberg, and Hauser 1996). To obtain early customer input before the start of the development (i.e., prototype) phase, the discontinuous NPD process requires a recognized and easy to apply customer research technique that enables customers to have a vivid experience of the technology application.

The present research contributes to our understanding of product narratives (i.e., a short story about somebody who is using a new product) as a customer research technique for early input in a discontinuous NPD process. In a unique collaboration with a multinational electronics firm, we test product narratives with drawn images. This approach can assist firms to develop a market understanding during predevelopment. We show that consumers' evaluations of product narratives match their evaluations of the working prototype that served as our benchmark. Customers experience the technology application and its use as vividly with a product narrative as with a prototype. Since narratives are relatively cheap and easy to develop, they can be readily used to obtain customer evaluations while still in the predevelopment phase, accelerating the process of gathering input for the formal screening. The preferences obtained from product narratives perfectly complement later input resulting from prototype testing in the development phase. Thus, the present research confirms that product narratives are valuable in early customer research within discontinuous NPD

projects and can assist firms to develop an early market understanding.

Although customer input is generally positively related to NPD success (e.g., Crawford and Di Benedetto 2008), it might limit the innovativeness of NPD projects, which is a strategic loss for a firm in the long term. Projects might become less innovative with input from end-users (Gourville 2006; Tauber 1974) or business-to-business customers (Fang 2008; Praest Knudsen 2007). This is because customers often have limited knowledge about new technologies, are uncertain about the new benefits, and are biased due to their familiarity with existing solutions (Christensen 2007; Gourville 2006; Tauber 1974). Regular concept tests do not provide customers with sufficient information to enable them to overcome their natural disinclination toward really new products (Lynn et al. 1996).

One solution could be to include information from more experienced customers (e.g., expert consumers with product category experience, or lead users) in the NPD process (Schoormans et al. 1995; Von Hippel 1986). However, the opinion of this select group does not always represent mass-market preferences and might be too homogeneous and over-optimistic (Bonner and Walker Jr 2004; Klink and Athaide 2006; Moreau, Lehmann, and Markman 2001; Tichy 2004). We address the issues mentioned above by using a narrative to provide potential end-users with a vivid experience of the really new product application. By using a traditional concept test (i.e., a bulleted list) as a contrast point (Page and Rosenbaum 1992), we make a contribution by showing that the default negative effect is alleviated by the vivid experience provided by a inexpensive and easy to implement narrative.

There are some precedents in the literature for accelerating the use of customer input with cheap and easy to make solutions. Past research with an incrementally new product shows that

virtual animations and static representations produce similar results as a demonstration of a prototype (Dahan and Srinivasan 2000). However, in the case of incrementally new products, one can argue that customers can draw from previous experience with existing products (e.g., coffee machines) when evaluating the new products. This is not likely to apply to discontinuous new products based on a radically new technology, as they often require new use patterns in which previous experience does not help (Lynn et al. 1996). For discontinuous new products, Van den Hende et al. (2007) showed that information in narrative form – presented with either drawn static images or animated photos (i.e., a movie of snapshots in which the new product is animated) – leads to similar results. However, for applications that use radically new technologies, a direct comparison has not yet been made between a working prototype and narratives with drawn images.

Customer input during predevelopment

Customer input, such as evaluations of the product application and the product's use, can support various important decision-making processes in the predevelopment phase. While a radically new technology is evolving, firms can anticipate unlimited possible applications for it by testing its most promising applications. Input from customers during predevelopment can help firms to examine multiple product applications, validate the focus on a specific application, and explore the possibilities of a technology application. Firms gain insight into the perceived value of a technology application; they can test if customers recognize the need for it and if the new benefits are in balance with the costs involved with learning the new use.

With this input, firms can:

- Make general go/no go decisions on radically new technologies,
- Select which technology application should be taken into development,
- Specify the target market and the market size, identifying who will benefit the most from a specific technology application,
- Optimize the features of the technology application,
- Build an initial business plan: market (excitement) numbers can help to convince corporate management (O'Connor 1998),
- Build a more solid business model: for instance, consider whether the firm should position the product as a follow up within a line (i.e., an existing market) or as a discontinuous new product with a new technology (i.e., a new market – this option would also include finding an operating unit home for the new business) (McDermott and O'Connor 2002).

Firms integrate marketing and technology efforts for discontinuous new products differently during predevelopment and development. The focus during predevelopment is on the technological differential advantage of the application; therefore, practical experience shows that customer input remains limited to qualitative observations of usage patterns with a view to gaining an understanding of the customer (O'Connor and Veryzer 2001). Other market input is provided by partners and strategic allies that are familiar with the market (O'Connor 1998). In contrast, once prototypes become available during the development phase, the focus shifts to a customer benefit orientation. Here, firms use techniques such as "probe and learn" and beta testing (Lynn et al. 1996; O'Connor 1998), information acceleration (Urban et al. 1996), and lead users

(Von Hippel 1986). These techniques provide insight into the customers' current and future usage situations. They also allow the customer to experience the benefits of the new product by interacting with it when it is almost fully developed. Through this (vivid) experience, the customer learns about the product application and provides valid evaluations.

Product narratives: A vivid presentation of product applications

Less realistic presentations of product use (e.g., through text or video) could be applied if they elicit vivid experiences of product use. Product use might be mentally visualized not only when seeing a demonstration of a working prototype, but also when intensively reading a text or watching a video about the product. The process through which such visualization works is called narrative transportation into a text or video (Green and Brock 2000). Narrative transportation is a mixture of attention, imagery, and feelings that people experience when they watch a movie or read a narrative. People completely immerse themselves in what they watch or read and have vivid images in their mind, see themselves in the scene of the action, experience emotions, and forget the world around them. Narrative transportation goes beyond mental imagery, as those who are immersed in the story participate in it as if they were the main character (e.g., instead of just imagining a red car, they feel that they are driving it). Prior research on mental visualization and really new products by Hoeffler (2003) shows that mental visualization instructions help customers learn about discontinuous new products that they cannot compare to existing products. Hoeffler (2003) showed that mental visualization of product use provides valid evaluations: it predicts the customer's later preferences after actual use of the really new product. This not only supports the notion that technology applications require a certain degree of vividness, but

also suggests that vividness does not depend on the presence of a prototype.

Empirical literature on narratives (storytelling) shows that there is no difference in experiencing fact or fiction; people experience fiction as a real experience (Green 2004; Green and Brock 2000). Based on this, one would expect that to obtain valid customer input, the degree of realism of the information (images, animations, or prototypes) is less important than the narrative character of that information. Once customers have imagined and experienced the technology application through narrative transportation, the surrogate experience will feel real and compensate for the lack of realism in the (visual) information that is provided. In addition, the technology application can be represented with less realism (i.e., as a drawing[2]) as long as the application is explained in a narrative form.

A narrative form is naturally embedded in a prototype demonstration. The demonstrator handling the prototype acts as a main character in a story – he or she has a goal, performs a number of actions, experiences certain consequences for every action, and rounds up the story with a conclusion. Demonstrations of technology applications can also retain the narrative form inherent to prototype demonstrations when they are represented in less realistic formats, such as static drawings of the technology application. Static formats can be used to tell the same story as prototype demonstrations, but since the form is more rudimentary, the customer has to visualize the flow of the actions and results for himself/herself. If customers are transported into the world of the story, they experience being its main character. Then, according to narrative transportation

[2] The results of Chapter 2 provide support for the use of drawings with narratives. In Chapter 2, drawings and photos produced similar levels of narrative transportation.

theory, customers are able to move beyond the lack of physical evidence and experience the technology application in a narrative with drawn images in the same way as they would experience a prototype, resulting in similar product evaluations.

If customers experience the product application in the same way as a prototype, a good test of the appropriateness of narratives presented with drawn images would be to include measures that are commonly used in prototype testing. These are measures of preferences resulting from design issues (Srinivasan, Lovejoy, and Beach 1997; Vriens et al. 1998), and include the evaluation of the interaction, ease of use, and aesthetics. This information is often obtained in the development phase of the NPD process, but is also important during predevelopment to obtain a better understanding of the product application. When comparing prototypes to narratives with drawn images, narrative theory predicts similar responses for interaction, ease of use, and aesthetic evaluations: when customers have a vivid experience of using the product, narration compensates for the lack of realism and allows for a surrogate interaction with the product.

Given the importance of the narrative structure, we expect that evaluations of the product, the interaction, ease of use, and aesthetics become very different if the narrative structure is broken down. Without a narrative form, visualizations of the product use and benefits will be less vivid. Less vivid product imagery results in a more negative attitude toward discontinuous new products (Hoeffler 2003; Tauber 1974). A simple way of degrading the narrative structure is to remove the main character from the story, thereby destroying the thematic interrelatedness between the goals and (inter)actions that is essential for a narrative structure (Adaval and Wyer 1998). This limits the opportunities for the customer to engage with a main character and connect with the story and the use of the product,

even when all the other product information (about desires, (inter)actions, outcomes (i.e., benefits) and conclusion) remains the same. Thus, product, interaction, ease of use, and aesthetic evaluations will be more positive for technology applications presented in a narrative form than for product applications presented without narration. The manner in which narration is presented (e.g., in a narrative text with drawn images or a prototype demonstration) will not affect product, interaction, ease of use, and aesthetic evaluations. This leads to our hypotheses:

When narration is present in the presentation of the technology application,

H1a: Product evaluations will be more positive.

H1b: Interaction evaluations will be more positive.

H1c: Ease of use evaluations will be more positive.

H1d: Aesthetic evaluations will be more positive.

H2: The degree to which customers experience narrative transportation will mediate the effect of the narration characteristic on the product, interaction, ease of use, and aesthetic evaluations mentioned under H1a to H1d.

METHOD

To test our hypotheses, we needed to compare the evaluations of a prototype demonstration with evaluations of narratives with drawn images and evaluations of non-narrative texts with drawn images. The multinational electronics firm that collaborated in this research provided the prototype. To perform a strict test of the conditions, we used the prototype as a basis for creating the other conditions. Consequently, our conditions did not differ in terms of product application information.

Table 3.1: Characteristics of the five tested conditions*

Tested conditions / Characteristics	A Prototype demonstration	B Video of prototype	C Narrative voiceover with drawn images	D Narrative text with drawn images	E Non-narrative text with drawn images
Prototype physically present (vs. web-based)	1	0	0	0	0
Dynamic realistic representations (vs. static drawings)	1	1	0	0	0
Voiceover (vs. reading a text at one's own pace)	1	1	1	0	0
Narration (vs. no narration)	1	1	1	1	0
Product information	1	1	1	1	1

* A "1" indicates that the characteristic is present in the tested condition and a "0" indicates that the characteristic is absent.

Next to these three conditions (the prototype demonstration, the narrative text with drawn images, and the non-narrative text with drawn images, respectively being conditions A, D, and E, as shown in Table 3.1), we added two conditions to control for the differences between the prototype demonstration and the narrative with drawn images. We included a video of the prototype (condition B) to control for the physical presence of the prototype. We included an audio narrative voiceover with drawn images (condition C) to control for pacing (i.e., in a prototype demonstration, the pace at which information is presented is determined by the demonstrator, whereas in the case of a narrative text the individual acquires the information at his or her own pace).

Stimuli

The study used the radically new technology of interactive transparent emissive screens, which were applied in the shopping window of an electronics store. The interactive screen of the shopping window assists customers to obtain information on products, in this specific application, mp3 players[3]. When a customer is not using the display, it is completely transparent, like ordinary glass. The screen has both touch and point interaction functionalities. A customer can start to operate the interactive screen by selecting the buttons on the screen and by pointing at the products that are on display in the show window. Product information appears on the interactive screen and selected products are highlighted within the show window. Consequently, not only is the underlying technology new, but also the application itself is new in that it provides new benefits and requires the user to learn new behavior.

[3] Due to reasons of confidentiality, the stimuli of the study cannot be shown.

Composing the prototype demonstration (A). In the case of radically new technologies, explanatory prototype demonstrations are often used as a solution for testing radically new technologies that are not yet fully developed. To build our explanatory prototype, we combined technologies to fully simulate the transparent screen technology with touch and point interaction. A demonstrator operated the prototype while another person verbally explained the actions and outcomes. This narrative explanation followed a classical storyline and was identical for all narrative conditions (A-D). The narrative started with a general introduction of the setting, showing the intentions of a main character (i.e., the demonstrator), three (inter)actions with the product and subsequent outcomes, and ended with a conclusion statement.

Composing the video of the prototype (B). The prototype demonstration was videotaped and the audio was recorded. A professional edited the visuals and audio to ensure that the voiceover would be logical and clear. This movie of the prototype replicates the face-to-face prototype demonstration, with the difference that the participants are not physically present when watching the demonstration.

Composing the voiceover narrative with drawn images (C). Screenshots were taken from the video of the prototype. Six screenshots were sufficient to capture the introduction and the three actions, with two close-ups of the results of two actions. An experienced Adobe Photoshop user turned these photorealistic screenshots into drawn images by tracing them. The drawn images represent the low-cost option for obtaining customer input on applications of radically new technologies. The narrative voiceover condition used the audio file of the video in combination with the drawn images.

Composing the narrative text with drawn images (D). A low-cost presentation of a technology application can be easily implemented with written text and static drawn images. The verbal text from the prototype demonstration (A) was presented as written text that was organized into paragraphs next to the images showing the contents of the paragraphs.

Composing the non-narrative text with drawn images (E). The condition without narration contained all the storyline elements, but the narrative characteristic was removed by eliminating any reference to a demonstrator (i.e., the main character) standing in front of the shopping window. The sentences of the text were bulleted and shown next to the images. Apart from the elimination of the narration, all information was similar to the other conditions; all conditions contained the same level of information about the product application.

Participants and procedure

This study used a one-way experimental between-subjects design with five distinct conditions with a total of 108 people (46 male, 62 female) participating in consumer household panels run by the sponsoring university and collaborating electronics firm. Selection criteria ensured that the participants had never been exposed to the specific product application under study and were of an age cohort that represented potential users of the interactive screen and mp3 players (25-50 years of age, mean age 41). The prototype condition (A, n = 20) was conducted at the electronics firm in a simulated shop (i.e., in house). Within the shop, the firm tests various kinds of applications of new technologies that facilitate shopping. The interactive screen was installed in the show window. On arrival, the participants completed a questionnaire with control variables assessing age,

gender, and prior knowledge of the product category (i.e., interactive screens in general) and product use domain (i.e., electronics shopping behavior and audio players). Next, the prototype was demonstrated. After the prototype demonstration, participants completed a follow-up questionnaire asking them to evaluate the product application, interaction, ease of use, aesthetics, and narrative transportation.

The other conditions were run over the Internet (i.e., video of prototype (B, n = 18), narrative voiceover with drawn images (C, n = 26), narrative text with drawn images (D, n = 23), and non-narrative text with drawn images (E, n = 21)). Participants received an email with a personal hyperlink to an Internet questionnaire survey. Participants were randomly assigned to one of the conditions. The survey started with the control variables questionnaire, followed by one of the technology application presentations, after which participants completed the follow-up questionnaire.

Measures

All measures were completed on 7-point scales. Because prior knowledge of the product category and product use domain has been shown to affect new product evaluations (Moreau et al. 2001; Schoormans et al. 1995; Sujan 1985; Wood and Lynch Jr 2002) we included control measures of prior knowledge of interactive displays, shopping behavior for electronics, and audio players. After the participants were given a short description of interactive displays that are currently present in public places (e.g., ticketing machines), prior knowledge of interactive displays was measured with two items ($r = .78$, $p < .000$; In general, how well are you informed about all kinds of different interactive displays, and Compared to your friends, how well are you informed about interactive displays, not at all/very much). Prior knowledge of the presented way of

shopping was measured with four items (Cronbach's alpha = .74, "I usually compare electronics before I buy them, Before I go to an electronics shop I know which product features are important to me, Before I go to a shop I visit electronics websites to gather information, and I always pay a lot of attention to electronics that are on display in a shop window, strongly disagree/strongly agree). Prior knowledge of portable audio players was also measured with two items ($r = .80$, $p < .000$; In general, how well are you informed about all kinds of different portable audio players, and Compared to your friends, how well are you informed about different kinds of audio players such as mp3 players, not at all/very much).

The first dependent measure assessed the value of the application and started with product evaluation, which was a six-item measure (Cronbach's alpha = .92, adapted from Hassenzahl (2001), unpleasant/pleasant, undesirable/desirable, bad/good, unappealing/appealing, discouraging/motivating, and rejecting/inviting). The second measure was an interaction evaluation of four items (Cronbach's alpha = .91; How much do you like the presented way of shopping, How much do you like the interaction of the shopping window, How much do you like the courses of action, and How much do you like the product demonstrated as a whole, not at all/very much). The third dependent measure was an expected ease of use measure consisting of three items (Cronbach's alpha = .84, adapted from Davis (1989); Learning to operate the interactive shopping window would be easy for me, I would find it easy to get the interactive shopping window to do what I want to do, and I would find the interactive shopping window easy to use, fully disagree/fully agree). The fourth dependent measure was a product aesthetics evaluation measure of two items ($r = .85$, $p < .000$, adapted from Bell, Holbrook, and Solomon (1991); poor looking/nice looking, and ugly/beautiful). The final dependent

measure was a transportation measure of five items (Cronbach's alpha = .79, adapted from Green and Brock (2000); While I was reading/watching I had a vivid image of myself using the interactive shopping window, While I was reading/watching I easily pictured a working interactive shopping window, The content of the product demonstration affected me a lot, I had a vivid image of the use of the interactive shopping window in an everyday situation, and My thoughts were fully focused on the product demonstration, not at all/very much). Drawn images have a lower level of realism than a prototype. We included a manipulation check of three items on the level of realism to ensure that our drawings represented the technology application with a lower level of realism than a prototype (Cronbach's alpha = .79; The interactive show window is depicted realistically in the product demonstration, The interactive shopping window seems to be drawn (reversed), and The interactive shopping window looks like a real shopping window, not at all/very much).

RESULTS

None of our control measures was significantly different across conditions (age: $F(4,103) = 2,00$, ns; gender: $F(4,103) = .32$, ns; prior knowledge of interactive displays: mean = 3.99, $F(4,103) = 1.43$, ns; prior knowledge of portable audio players: mean = 3.88, $F(4,103) = 2.21$, ns; prior knowledge about shopping behavior: mean = 5.28, $F(4,103) = .45$, ns). Thus, distributions of age, gender, and prior knowledge were equal across conditions and did not influence our results. Therefore, we do not use them as covariates in further analyses. The manipulation check on level of realism in the web-based

conditions[4] was successful: the appearance of the prototype in the video was a closer representation of reality than the three conditions with drawn images (prototype video = 5.96, voiceover with images = 4.35, narrative text with images = 4.86, non-narrative text with images = 4.35, $F(3,79) = 9.09$, $p < .001$). A post hoc test (Bonferroni) showed that the prototype video scored higher ($p < .05$) on the level of realism measure than the isolated drawn image conditions. No differences in level of realism were present across any condition with drawn images.

Hypotheses 1a to 1d state that technology applications presented with narration will be evaluated more positively than technology applications presented without narration. The implication of these hypotheses is that the prototype demonstration (A) and the narrative text with drawn images (D) will be evaluated similarly. Using ANOVA, we found significant differences between our conditions on all four dependent variables (product evaluation: $F(4,103) = 3.09$, $p < .05$; interaction evaluation: $F(4,98) = 4.51$, $p < .01$; ease of use: $F(4,102) = 6.96$, $p < .001$; aesthetics: $F(4,98) = 4.71$, $p < .01$).

More importantly, post hoc tests (Bonferroni) only revealed significant differences between the non-narrative condition (E) and the other four conditions (see Table 3.2). Thus, the Bonferroni post hoc test showed no differences between the isolated conditions with narration: the prototype demonstration (A), the video of the prototype (B), and the narrative conditions with drawn images (C and D) showed similar evaluations on all dependent measures.

[4] This measure was left out in the prototype demonstration (A), as the participant had just seen the product in real life.

Table 3.2: Means of all dependent measures and Bonferroni post hoc test results for condition E versus the isolated conditions A, B, C, and D

	E Non-narrative text with drawn images	A Prototype demonstration		B Video of prototype		C Narrative voiceover with drawn images		D Narrative text with drawn images	
Product evaluation	4.56	5.58	*	5.54	*	5.30		5.27	
Interaction evaluation	3.68	5.30	***	4.94	*	4.88	*	4.96	*
Ease of use	5.10	6.57	***	6.04	*	6.13	**	6.01	**
Aesthetics	4.00	5.48	***	5.00	*	4.92	*	4.98	*

Bonferroni post hoc tests between condition E and the isolated narrative conditions are marked * for $p \leq .05$, ** for $p \leq .01$, and *** for $p \leq .001$.
The contrast between condition E and the non-isolated narrative conditions was significant at $p < .01$.
Bonferroni post hoc tests between isolated narrative conditions A, B, C, and D were not significant.

Specifically, supporting hypotheses 1b, 1c, and 1d, the non-narrative condition (E) was evaluated significantly lower on interaction evaluation, ease of use, and aesthetics than the isolated conditions with narration (A, B, C, or D). For product evaluation, the non-narrative condition (E) was evaluated significantly lower than the isolated prototype demonstration (A) or video of the prototype (B), while for the isolated narrative voiceover with drawn images (C) or narrative text with drawn images (D) the effect was directionally present. However, comparing the conditions that feature narration with the non-narrative condition showed a significant difference in product evaluation (narrative conditions (A, B, C, and D) vs. non-narrative condition (E), $t(103) = 3.35$, $p < .01$), supporting hypothesis 1a. When (control) conditions B and C were removed from the analyses, the results remained the same: no differences were present between a prototype demonstration (A) and a narrative text with drawn images (D), while the indicated differences between these conditions and the non-narrative text with drawn images (E) were present.

The second hypothesis states that narrative transportation mediates the previous results. As expected, the means for the transportation measure across conditions showed a similar pattern to evaluations (prototype demonstration = 5.39, video of prototype = 4.92, narrative voiceover with drawn images = 4.78, narrative text with drawn images = 4.64, non-narrative text with drawn images = 3.98, $F(4,98) = 4.93$, $p < .01$).

To test the hypothesized mediation, we followed the four mediation steps as described by Baron and Kenny (1986). As independent variables, we used the dummy variables listed in Table 3.1 that represent the distinctive characteristics of the tested conditions (i.e., prototype present, dynamic realistic representations, voiceover, and narration). Table 3.3 shows the mediation results.

Table 3.3: Mediation results

Dependent Variable (DV)	Independent Variables (IVs)	Mediator (M)	Step 1: IVs → DV Beta | t	Step 2: IVs → M Beta | t	Step 3: M → DV Beta | t	Step 4: IVs + M → DV Beta | t	Sobel test t
Product evaluation	Narration dummy		.26 | 2.23 *			.15 | 1.45 ns	1.97*
	Other dummies		ns			ns	
		Transportation			.60 | 7.62 ***	.58 | 6.61 ***	
Interaction evaluation	Narration dummy		.36 | 3.17 **			.20 | 2.36 *	2.29 *
	Other dummies		ns			ns	
		Transportation			.64 | 11.01 ***	.71 | 9.71 ***	
Ease of use	Narration dummy		.36 | 3.29 ***			.21 | 1.99 *	1.82 *
	Other dummies		ns			ns	
		Transportation			.43 | 4.81 ***	.41 | 4.48 ***	
Aesthetics	Narration dummy		.33 | 2.85 **			.25 | 2.24 *	1.87 *
	Other dummies		ns			ns	
		Transportation			.52 | 6.10 ***	.33 | 3.39 ***	
	Narration dummy	Transportation		.23 | 2.06 *			
	Other dummies			ns			

* p ≤ .05 ** p ≤ .01 *** p ≤ .001

The first mediation step shows that only the narration dummy significantly predicts the dependent measures. The second step shows that the narration dummy significantly predicts transportation. In the third step, transportation significantly predicts the evaluation measures. Finally, when including transportation in the original analysis, transportation remains significant in all cases, but more importantly the narration dummy term becomes insignificant for the product evaluation measure (i.e., full mediation), and drops in significance for interaction evaluation, ease of use, and aesthetics.

To test for partial mediation, a Sobel (1982) test is performed. Results show partial mediation effects of transportation for product evaluation ($t(97) = 1.97$, $p < .05$), interaction evaluation ($t(97) = 2.29$, $p < .05$), ease of use ($t(97) = 1.82$, $p < .05$, one tailed), and aesthetics ($t(97)= 1.87$, $p <. 05$, one tailed). Thus, supporting hypothesis 2, narrative transportation mediates the effect of narration on product evaluation, and partially mediates the effect of narration on interaction evaluation, anticipated ease of use, and aesthetic evaluations.

CONCLUSION AND DISCUSSION

The aim of the study was to show that product narratives provide valuable input from customers in the predevelopment phase of a discontinuous NPD process. Our easy to apply product narrative successfully explains an application that uses a radically new technology to a customer before prototypes have been completed. A product application of a radically new technology presented in a narrative form with drawn images provides the customer with sufficient mental imagery to give a valid evaluation of the application. The results show that no differences are present between the narrative text with drawn

images (D) and a prototype demonstration (A) on all dependent variables (i.e., evaluations of the product, interaction, ease of use, and aesthetics), also considering the conditions (B and C) that have been added to make a comparison possible. We find differences in customers' evaluations only when the narration is removed from the text with drawn images (E). Regression analysis confirms that narration is the key variable that predicts the evaluations of the product, interaction, ease of use, and aesthetics. Without narration, texts with drawn images are insufficiently vivid to transport the reader to enable him or her to imagine using the new product, and consequently, see and understand its benefits.

Besides physical presence and pacing, the prototype demonstration differed from the narrative text with drawn images in that its representation was truer to life. Although participants were aware of the differences between the levels of real-life representation in the images used, this did not influence their evaluations of the technology application in our study. This result justifies the choice of drawn images instead of photorealistic images as simplified, cheap solutions in condition D. We build on prior research that showed no differences between photos and drawn images of a discontinuous new product in terms of narrative transportation (Van den Hende et al. 2007). We show that there is also no difference between drawn images and prototypes. Apparently, images of new products do not need to be real-life representations to be vividly experienced. This, in combination with our results, justifies our choice to exclude a control condition with photorealistic images.

The face validity of the tested conditions was high: the prototype demonstration and the video of the prototype were similar to early prototype demonstrations or pilots. The conditions with drawn images and narration are comparable to storyboards that are either read by the participant or verbally

explained in the case of a voiceover. Finally, the non-narrative text with drawn images is comparable to standard techniques for customer input based on concept boards or stimuli used in conjoint studies.

A concept board is a typical tool for evaluations of incrementally new products. Lynn et al. (1996) and Hoeffler (2003) argue that these tools are not suitable for evaluations of radically new products as consumer response to really new products is often too negative. We make a contribution by quantitatively demonstrating this effect: consumers responded relatively more negatively to a really new product that was presented on a concept board compared to presentations that featured narration. A concept board (non-narrative with drawn images) produced less positive evaluations of all dependent variables. Not only did the consumers evaluate the product application and its interaction less positively compared to presentations based on narration, but they also expected the product to be more difficult to use and perceived it as being less attractive.

We also contribute to narrative theory and provide an easy to use technique for early customer input on discontinuous new products. Prior research shows that narratives are evaluated more positively than non-narratives (Adaval and Wyer 1998) but this was not demonstrated for product applications that use radically new technologies. We contribute by showing and confirming that narrative transportation was present in these narratives. Furthermore, we used a benchmark to confirm the validity of the more positive evaluations obtained with narrative texts with drawn images. Finally, we contribute to prior research demonstrating that the degree of realism of images that accompany a narrative does not affect narrative transportation (Van den Hende et al. 2007) by including a prototype demonstration.

Limitations and future research

We acknowledge the limitations inherent in our research. We relied on a person to demonstrate the prototype instead of giving the customer the opportunity to use the prototype before evaluation. A trial helps consumer learning about applications of radically new technologies (Lynn et al. 1996). However, the demonstration of the use made it possible to compare the product prototype directly to the other conditions. The demonstration enabled consumers to (surrogately) experience product trial through narrative transportation. Dickinson and Wilby (1997) compared concept boards and customer trial evaluations and concluded that a trial did not result in different evaluations. Further research could explore the relation between trial and narrative transportation.

Hypothesis 1a was supported when the non-isolated narrative conditions were compared to the non-narrative condition, but not when the isolated narrative conditions were compared to the non-narrative condition. The isolated narrative conditions C and D did not produce significantly higher product evaluations than the non-narrative condition (E). The more powerful (non-isolated) comparison showed the hypothesized effect. We showed that narration closes the gap between prototype evaluations and traditional concept test methods. Consumers evaluated the non-narrative text condition significantly lower than the prototype condition, and did not evaluate the narrative text condition significantly lower than the prototype condition. So, the narrative text with drawn images closed the gap, leading to product evaluations that were more in line with the prototype evaluations. Narration compensated for the default, less positive evaluations.

We used customers who had never been in touch with the product application under study. This limits the generalizability

of our results. However, the means of prior knowledge of the product category were around the midpoint of the seven-point scale. Thus, our non-expert participants had knowledge of the product category and were therefore able to give valuable evaluations (Schoormans, Ortt, and De Bont 1995). Replicating the research with experts who have knowledge about the product application (i.e., employees of the firm who are involved in the development of the technology application or participating customers (e.g., retailers, Lengnick-Hall 1996) who are involved as co-developers) as well as evaluations after use of the prototype by the customer are opportunities for future research.

Other avenues for further research include multiple projects and multiple applications of the same radically new technology. With more projects, results can be generalized across different product categories. With multiple applications of the same technology, the ranking of the applications could be compared across conditions. Comprehension of the new product application is a dependent variable that offers further research potential.

Managerial implications

The idea that narrative transportation compensates for a lack of realism is interesting for firms. Narratives with static drawn images of technology applications are cheap and fast to construct, and allow for multiple applications to be tested against each other. Drawings and renderings can be made when no prototypes are ready or it is not possible to provide any other physical demonstration of a final product design. The applications can be explored by making simple changes to the drawings and storyline. For example, firms can explore necessary system demands (e.g., which complementary technology is necessary), feature combinations, and design considerations. Changes at this moment of the NPD process are relatively cheap.

With the input, managers better understand the requirements and the value of a technology application, which enables them to make decisions regarding application focus and the direction of further development. In addition, the insights can give direction to the optimization of the technology for the specific application, and help support a fruitful business case. Since the narrative text with static drawn images resulted in equal evaluations and expected ease of use as a prototype demonstration, this technique can be used at an early stage.

Narrative transportation also compensates for the lack of the physical presence of the technology application. The technology application becomes vivid and easy to imagine with the help of a character that goes through a series of events. In a narrative, a main character mirrors the physical presence of a person that demonstrates the prototype. The demonstration does not depend on technological feasibility and firms can test a narrative with drawn images over the Internet. Tests without physical prototypes are not only cheaper to run, but are also less likely to give away competitive intelligence about the technology. After all, it is not the technology that is demonstrated, but rather an abstract representation of the technology in a product application.

Valid, earlier customer input on the applications gives firms more confidence in their market prospects. Early integration of market knowledge into technology development shortens the time to market (Griffin 1997). It contributes to the technology application's acceptance and assists the formation of the project team and operating unit. Next, firms can test the assumptions and judgments of possible target markets. Narratives with drawn images provide earlier notice of market support before prototypes are made. We want to emphasize that the narrative technique should never replace prototypes. It is crucial to establish technological feasibility with early prototypes.

Prototypes are very important for building a solid business proposition and optimizing the product application into a final product. Thus, technology application narratives should be used as a formal activity to accomplish market integration during predevelopment to strengthen the formal evaluation screening of the technology application.

The concepts presented with narration were rated higher than the concept that was presented without narration. When a firm decides to choose one concept out of many, a general tendency toward low evaluations (such as those found in the non-narrative condition) should not matter. However, overall low evaluations may make firms hesitant to invest in a specific application for the new technology, and question the relevance of the technology itself. When go/no go decisions are made, it is likely that radically new technologies will suffer the most because they make the highest demands on the imaginations of consumers during concept tests. However, the success of a firm is often determined by the major innovations that radical technologies can deliver. Using narrative concepts will help firms to overcome this potentially important barrier to innovation.

Chapter 4 is an adapted version of: Van den Hende, Ellis A., Darren W. Dahl, Jan P.L. Schoormans, and Dirk Snelders: Narrative Transportation in Concept Tests for Really New Products: The Moderating Effect of Reader-Protagonist Similarity. Submitted to the Journal of Product Innovation and Management.

Chapter 4 investigates the benefits of using a narrative versus attribute/benefits listings and the role of a protagonist focal character in facilitating consumer evaluations. Using three studies, we find that a protagonist dissimilar to the reader moderates the benefits of a narrative format on evaluations, but only when the reader is not explicitly instructed to imagine him/herself as the protagonist and when the dissimilar protagonist is from a dissociative out-group.

4

(NON-)NARRATIVES AND PROTAGONISTS

INTRODUCTION

It is both crucial and difficult to obtain consumer evaluations of product concepts in the new product development (NPD) process (Callahan and Lasry 2004; Cooper and Kleinschmidt 1986; Langerak, Hultink, and Robben 2004; Veryzer 1998a). At early stages in NPD, consumers have limited knowledge of a product concept, and when such product concepts are really new consumers cannot rely on comparable product experiences in forming their evaluations. Evaluation of the new product has to be constructed at the moment of measurement, leading to uncertainties and resistance in evaluation (i.e., a default negative evaluation of really new product concepts, Hoeffler 2003; Tauber 1974). Previous research on product evaluation has pointed to ways of helping people to overcome their initial resistance to really new products by visualizing the product and making a mental representation of how it can be used. This might be through the use of analogies (Moreau et al. 2001), instructions to visualize product use (Dahl and Hoeffler 2004), or to mentally simulate the product and its benefits (Hoeffler 2003). These studies show that visualization and mental simulation

instructions have positive effects on evaluation and later product adoption, and the reason that is given for this is that processes of imagination can provide a surrogate experience of the product (Hoeffler 2003).

Building on this early research, we focus on presenting really new product concepts in a narrative form, as a way of providing guidance to the imagination and mental simulation experienced by the consumer. In the NPD context studied, narratives provide a storyline with thematically and temporally related events which typically describe a protagonist (i.e., a main character), a setting, and a plot with a series of actions (Adaval and Wyer 1998; Tierno 2002). Narratives evoke imagery and can provide surrogate experiences of new worlds (Green and Brock 2000) as if it is a real experience (Green 2004). In the context of early product evaluation, the imagination of consumers can be guided by a narrative about a protagonist who uses the new product in a series of actions and events. In this way a narrative can present information about the new product concept in a way that is evocative and relevant. Narratives go beyond simple imagination by drawing the reader more fully into a storyline enabling a richer product experience. In essence, readers become "transported" into the storyline and see and experience the events and content of the narrative (Green and Brock 2000). Employing narratives about new products in consumer research could therefore help to paint a full picture of the product concept and its potential success in the marketplace before a tangible product is available.

We expect that specific content characteristics of the narrative text, namely the description of the protagonist (i.e. the user of the new product in the narrative), will play an important role in the evaluation of the product concept. In narrative formats, the protagonist can be regarded as the carrier of the story (Konijn and Hoorn 2004), creating empathy and good will

on behalf of the reader. We propose that protagonist similarity (or dissimilarity) to the reader will facilitate (or frustrate) transportation into the narrative and through this, evaluation of the new product. This idea, that protagonist similarity to the reader may impact transportation has been put forward before by Green (2004), but has not been empirically tested.

Recent studies suggest that an engaging narrative can lead to more positive evaluation of advertisements (Escalas 2004, 2007; Wang and Calder 2006) and of melodramatic entertainment (Argo, Zhu, and Dahl 2008). The reason for this is that engagement with a narrative depends on the reader being immersed, lost, or transported into the world of the protagonist (Gerrig 1993; Green and Brock 2000; Nell 1988). The personalization of the experience through the narrative, changes the perspective of the consumer. Given these previous findings, one expects that in a concept test of a really new product a narrative that induces a personal experience of the product's use will lead to higher evaluations of the new product concept than straightforward information regarding product use, attributes and benefits (e.g., a bulleted list of product details).

Utilizing three empirical studies, this research looks at the potential effects of protagonist (dis)similarity with the reader on transportation and new product evaluation both in narrative and bulleted list evaluation formats. Study 1 shows an interactive effect of reader-protagonist similarity and evaluation format on transportation and product evaluation. Results from this study show that reader-protagonist similarity is needed for a narrative to be effective. Studies 2 and 3 provide deeper insight by showing exceptions to the relationships established in the first study. In Study 2, we find that the negative impact of a dissimilar protagonist can be mitigated by explicitly instructing the readers to imagine themselves as the protagonist and fully experience the storyline. Study 3 shows that the negative implications of using a

dissimilar protagonist can be alleviated by choosing a dissimilar protagonist that is not from a dissociative out-group for the reader. Finally, the underlying process for the observed effects is demonstrated: narrative transportation is shown to mediate the observed effects.

Our findings are important for the employment of narratives in NPD research as they provide important guidelines for how new product narratives should be constructed for consumers who participate in early product concept evaluations. More generally, this research is the first to investigate experimentally how (dis)similarity between reader and protagonist impact reader reception. Thus, our findings are broadly relevant for advertising and for the marketing of products and services that depend on narration for their promotion and/or consumption. In the next section, we discuss the narrative transportation literature, and identify its relevance to evaluation formats and reader-protagonist similarity. Three studies are presented that test the forwarded hypotheses from our discussion. Finally, we end with a general discussion and suggestions for future research.

Narrative transportation and evaluation formats

When people are reading a narrative they can experience the feeling of being transported, in the sense of getting lost in the story and being engaged with the protagonist and the events that take place (Green and Brock 2000; Nell 1988). Green (2004) finds that people who are more transported into the narrative experience the story as a more real occurrence. Green and Brock (2000) have theorized that readers experience what the protagonist experiences, and are affected by the events that take place in the narrative, even after finishing the narrative. In addition, transported readers can see themselves as the actor in the scene of events, so transportation is a form of self-related

imagery. Transported readers imagine more than just the content of the narrative, they imagine themselves as the protagonist performing the action (i.e., imagining the protagonist kicking a yellow ball vs. imagining themselves kicking a yellow ball). In essence, there is a self-emplacement by the reader within the imagined narrative (Escalas 2007; Gerrig 1993; Green and Brock 2000).

An important element of being transported into the world of the narrative is the use of mental imagery that enables the reader to see the narrative transpire. For narratives, visual imagery is strongly related to the reader's self, and makes the story feel more self-relevant for the reader (Green and Brock 2000). In the case of new product narratives, a story about a protagonist who uses a product will be imagined by a transported reader as if he or she is using the product him or herself. Thus, the more a new product narrative evokes transportation (and therefore self-relevant imagery) the more it is likely to support consumers in experiencing the new product as a surrogate.

Importantly, the use of narrative transportation by individuals has been shown to be impactful in subsequent affective and evaluative judgments. For example, in a study that used a murder story as stimulus, Green and Brock (2000) found that narrative transportation results in positive affective reactions towards the main character (the murder victim) and a change of beliefs of real world statements (penalties for murder). Research in marketing shows similar results. Here it is found that transportation leads to more affective and positive evaluations of advertisements (Escalas 2004, 2007; Wang and Calder 2006) and of melodramatic entertainment (Argo, Zhu & Dahl, 2008).

The impact that narratives have on judgments are mainly caused by their structure (i.e., temporal connections that facilitate the construction of a temporal sequence) (Pennington

and Hastie 1986, 1988, 1992; Wyer Jr 2004). Narratives are thought to incite narrative transportation through their coherent structure, i.e., providing meaning and context with a storyline format of actions and events (Green 2004; Green and Brock 2002). Translating this theory to new product evaluation, narratives would describe a protagonist using the product, encountering attributes and benefits of the product, in a specific context of use. Thus, the temporal connections give a specification to the order in which actions and events occur, which allows the reader to get transported, connect emotionally with the protagonist and the story, and experience product use as if it is real.

New product information can also be conveyed in a bulleted list that contains information about the attributes and benefits (Page & Rosenbaum, 1992). Because of a lack of narrative structure, the information is temporally and thematically unrelated. In a study on tourist destinations, Adaval and Wyer (1998) compared a narrative evaluation format to bulleted information in a list. They found that imagining tourist destinations is easier and evaluation of the destinations is higher when the information is conveyed in a narrative format versus a bulleted list. An explanation of this effect in terms of transportation has been provided by Green (2006). Green gives the example of listing the benefits of cancer screening (e.g., living longer) and argues that this would not inspire as much action as hearing a woman talk about surviving cancer because of early screening. In other words, the structure of the events enhances transportation and a feeling of self-emplacement in a narrative, which is not the case in a list. Similarly, when reading a narrative about a really new product concept, transportation should be higher and a vicarious experience should be realized. The personal use experience of the really new product should reduce the uncertainties that by default cause more negative

preferences. Thus, readers of a narrative should evaluate the product concept more favorably compared to readers of a list. In the next section we extend this line of thinking by considering how similarity between the reader and the protagonist featured in a narrative moderates the effect of using a narrative format (as opposed to a bulleted list) on transportation and evaluation.

Protagonist and reader similarity

When people are reading they tend to naturally imagine themselves as the main character, and see themselves in the setting of the narrative even when they are strongly instructed not to do so (Bone and Ellen 1992; Green and Brock 2000). Engaging with the protagonist is needed to become transported into the world of the narrative (Green and Brock 2002). A way to become more engaged is to know something about the world of the protagonist. Green (2004) shows that knowing someone who is gay or a member of a fraternity results in more transportation when reading a story about a gay protagonist who returns to his college fraternity for a reunion. In the same article the author argues that one should expect that being more similar to the protagonist (i.e., being gay, or being a member of a fraternity) will result in even stronger effects on transportation. Thus, being similar on a number of character aspects should enable the reader to relate him/herself more to the protagonist and become better transported into the world of the narrative.

It follows that self-emplacement for the reader will be hindered for protagonist-reader dissimilarities. Indeed, a dissimilarity can cause a decrease in perceived relevance, which is known to limit the activation of the self (Walker and Olsen 1997). By choice, readers may stay at a safe distance outside the world of the narrative, not wanting to engage in the narrative, and as a result will not be transported. With reader-protagonist dissimilarity, readers are not motivated to figure out the

protagonist's intentions with the product. It may therefore become difficult to understand the functions and benefits of the new product. When the portrayed product is very new the functionality of the product may not be easily appreciated by the reader without such self-emplacement and self-related imagery. Thus reader-protagonist dissimilarities will lead to reduced transportation and this, in turn, will lead to less favorable evaluations of really new product concepts.

The effects of evaluation format (narrative versus list) and reader-protagonist (dis)similarity can now be considered in combination. With a narrative we predict that readers will be more transported with a similar protagonist than a dissimilar protagonist, and will therefore evaluate the product in the narrative more favorably. For the bulleted list, a similar or dissimilar protagonist will not make a difference, because without a narrative structure, readers will not make a connection with the protagonist. We expect that narratives lead to more transportation and more favorable product evaluations than lists. More formally:

> H1a: The effect of evaluation format (narrative versus list) on product evaluation is moderated by reader-protagonist (dis)similarity. For narratives, a similar protagonist will result in higher product evaluations than a dissimilar protagonist. For lists, reader-protagonist (dis)similarity will not affect product evaluation.

> H1b: Transportation mediates the combined influence of evaluation format and reader-protagonist (dis)similarity on product evaluation.

Mitigating the effect of a dissimilarity in a narrative

We consider two conditions under which the negative reader-protagonist dissimilarity outcome identified in Hypothesis 1a can be mitigated. First, a strategy to offset the implications of a dissimilar reader-protagonist is to explicitly instruct someone to take the perspective of the protagonist, thus, imagining themselves as the protagonist of the narrative and fully participating in the narrative. As argued above, people by default are disinclined to transport into a narrative about someone who is dissimilar to them. However, when motivated by direct instruction to change perspective and to imagine themselves as the protagonist they may be able to overcome their natural disinclination. Explicit instructions move participants from a default "path of least resistance" (Ward 1994) and better focus them on the task at hand (see also Zhao, Hoeffler, and Dahl 2009). Explicit instructions to imagine a product are found to help people use their imagination (Hoeffler 2003; Petrova and Cialdini 2005). Dahl, Chattopadhyay, and Gorn (1999) instructed engineers explicitly to use their imagination in developing a new product, which motivated them to create images of new events that they had never seen before resulting in a more appealing product design for consumers. Similarly, we expect explicit instructions to imagine oneself as the protagonist (i.e., not just instructions to imagine but instructions to participate and see oneself as the protagonist) will provide motivation for participants to better transport into the narrative with dissimilarity between the reader-protagonist. Thus, specific instructions to take the perspective of the protagonist will help people to transport into the world of the dissimilar protagonist and experience the new events portrayed. Thus, we expect explicit instruction will mitigate the negative effect inherent in

dissimilarity between a reader-protagonist mismatch in a narrative.

Second, the negative effect created by dissimilarity between reader-protagonist can be mitigated by taking a closer look at the dissimilar protagonist. We argue that not all dissimilar protagonists will impact the reader in the same way; reader reactions are likely to differ depending on the perceptions of and willingness to relate to (or dissociate with) the dissimilar protagonist. We expect that dissimilarity between the reader-protagonist where the protagonist is from a dissociative out-group underlies the hypothesized negative effects on transportation. Following previous research (Berger and Heath 2007; Tepper 1994; White and Dahl 2006, 2007), protagonists in a narrative can be either an in-group, out-group, or dissociative out-group for the reader. These groups are related to social identity theory, where an affiliation with a reference group relates to social identity (Tajfel and Turner 1979). A reference group can either be one's own group (i.e., an in-group), a group that one does not belong to (i.e., an out-group), or a group that one does not belong and wishes to avoid being associated with (i.e., a dissociative out-group). To maintain a positive social identity, people exhibit more positive self connections to brands related to in-groups than to out-groups (Escalas and Bettman 2005). On the negative side, consumers are found to be motivated to avoid products that are associated with negative social identities (Berger and Heath 2007; Tepper 1994; White and Dahl 2006, 2007). White and Dahl (2007) show more negative evaluations for products labeled as dissociative out-group compared to products labeled as out-group or in-group. When relating the above findings to (dis)similarity between reader-protagonist in narratives, these results imply that as long as the protagonist is not in a dissociative out-group, a dissimilar

protagonist could still provide the means for effective transportation and improved product evaluation.

We predict that the moderating effect of dissimilarity between reader-protagonist on transportation and evaluation (as predicted in Hypothesis 1a and 1b) is mitigated by either: a) explicit instruction to take the perspective of the protagonist or, b) through the use of a dissimilar protagonist in the narrative that does not belong to a dissociative out-group for the reader.

> H2: With dissimilarity between the reader-protagonist, narratives involving explicit instruction to take the perspective of the protagonist will result in more transportation and positive product evaluations compared to narratives with no instructions.

> H3: In a narrative format, the negative effect of a dissimilar protagonist will be mitigated when the dissimilar protagonist is from a non-dissociative out-group.

Study 1

The primary objective of the first study was to test Hypothesis 1a and 1b by directly manipulating evaluation format and reader-protagonist (dis)similarity. The design of the study was a 2 (evaluation format: narrative vs. bulleted list) x 2 (reader-protagonist (dis)similarity: similar vs. dissimilar) between-subjects design. One hundred and seven participants were invited to participate in the study and were recruited at activity centers in a large Western European city and were between 55 and 80 years of age (with a mean age of 67). In all studies participants were from this age cohort. Fourteen

participants were excluded from the analysis for non-response and/or failure to follow instructions in completing the study.

Older consumers show greater reluctance to adopt new technologies and products although they can benefit as much from them as other consumers (Im, Bayus, and Mason 2003; Phillips and Sternthal 1977). New product narratives are likely to engage older people as much as younger people. Older people are found to be able to "walk along" with the protagonist while reading (Stine-Morrow, Morrow, and Leno III 2002). In addition, evidence has been found suggesting that older people interpret texts deeply as a whole (Adams et al. 1997), forming overall impressions of information, which is appropriate when evaluating new product concepts.

METHOD

Stimuli

The focal product used in the study was an Ebook, which is a device on which electronic files can be read. The Ebook comprises new technology (e.g., a screen of digital paper), new benefits (e.g., changing the font size), and it requires new behavior (e.g., downloading books and papers to read). Pretesting confirmed the Ebook as a really new product for the participant population.

Independent variables

The format manipulation was executed by relating the product information to the study participants through either a narrative or bulleted list. In the narrative condition, the narrative story followed a classical storyline (Tierno 2002). It started with an introduction of the protagonist and the setting, continuing with the action of using the product, and closing with leaving the setting (Green 2004). The narrative used straightforward, plain

language, without compelling prose and only told the experiences of the protagonist. In this first study, we wanted to use a bulleted list that had high face validity for concept test research (typical elements of such a list are product features and benefits) (Page and Rosenbaum 1992). The bulleted list condition was constructed by removing the temporal order of events, and their logical interrelatedness from the narrative (following a similar procedure used by Adaval and Wyer 1998). Thus, the specification of the order of actions was removed. To make it more of a product concept list, the action of use was written around the product instead of performed by the protagonist. The result was a bulleted list with an equal level of product description, use context, and product use information compared to the narrative, however, the list contained less direct reference to the protagonist, though it did mention the protagonist twice at the outset. In a check on protagonist identification, all participants correctly identified the protagonist.

An example of a paragraph in the narrative and its transformation into the list (the full narrative can be found in Appendix B):

Narrative:

> Meanwhile, the setting sun has started to shine on the screen of his Ebook. Matthew notices that he is not having difficulty with reflections of the sun on the screen. He realizes that this is because the screen is made of digital paper, but how this works exactly he doesn't know. That doesn't matter, what matters to him is that it reads like paper, with more contrast than a normal screen.

Bulleted list:

- The light of a setting sun can shine on the screen of the Ebook. This does not cause difficulty with reflections of the sun on the screen.
- The screen is made of digital paper. Without the technical details: it reads like paper, with more contrast than a normal screen.

The protagonist-reader (dis)similarity manipulation was achieved by varying the implied ethnicity of the protagonist. Pretesting indicated that for the participant population utilized in this study non-Caucasian individuals were perceived to be dissimilar to the participants. Indeed, the age cohort utilized in this study represented a completely homogenous ethnic population. Thus, in the dissimilar condition the protagonist was Mohammed who had moved from Morocco. In the similar condition the protagonist was Matthew, who had recently moved from the USA to the Western European country of the reader. Absolute perceived proximity as a potential confound has been excluded as an explanation for possible results, as Morocco is closer to the country of origin of the reader than the USA. The protagonist manipulation sentence was stated both in the text explanation and in the headline of the text itself on the subsequent page of the booklet. The explanation also stated that the source of the narrative/bulleted list was an Internet forum, where someone had written the text about someone else (i.e., the protagonist) and the product.

Procedure

Participants were asked to evaluate a product in a take home questionnaire. On site, they were verbally instructed on how to complete the questionnaire instrument (e.g., to work alone, in a quiet room, complete the research in one sitting, don't talk with

others about it, we would like to hear both your positive and negative opinions, etc.). The extensive instructions familiarized the participants with the research and made them feel comfortable. After returning the questionnaire, participants received a compensation of 5 Euros and were thanked and debriefed.

Dependent variables

All measures were completed on seven-point scales. The first dependent variable was a product evaluation measure of two items (unfavorable/favorable, and poor/excellent; $r = .83$, $p < .001$). The second dependent measure was a transportation measure of four items ($\alpha = .79$) (adapted from Green and Brock (2000): e.g., While I was reading I had a vivid image of myself reading texts on the Ebook, not at all/very much). The manipulation check of similarity with the main character followed (To what extent are you similar to [Mohammed/Matthew], not at all/very much), as well as a measure of involvement (While reading this material, I was concentrating on carrying out the instructions given to me, not at all/very much). Covariates measuring technology adoption, current attitude towards reading books (I like reading, and I like books, not at all/very much), educational level, age, and gender were also included.

RESULTS

The manipulation check on reader-protagonist (dis)similarity was successful (similar = 2.22, dissimilar = 1.45, $F(1, 89) = 10.04$, $p < .01$). Mohammed from Morocco was perceived to be less similar than Matthew from the United States. No other effects were shown to be significant. Involvement measures showed no differences between the

narrative and the list conditions (narrative = 4.71, list = 4.95, F < 1), the similar or dissimilar reader-protagonist conditions (similar = 4.80, dissimilar = 4.89, F < 1), nor their interactions (F < 1). The correlation between involvement and transportation was also not significant (r = .07, p > .52). The covariates measured were not shown to significantly influence the results, so were not included in subsequent analyses.

Showing support for Hypothesis 1a, ANOVA with evaluation format and reader-protagonist (dis)similarity as independent variables and the product evaluation measure as the dependent variable showed a significant interaction effect (narrative similar = 5.42, narrative dissimilar = 4.18, list similar = 4.28, list dissimilar = 4.57, F(1, 89) = 4.30, p < .05, see Figure 4.1). No other effects were significant.

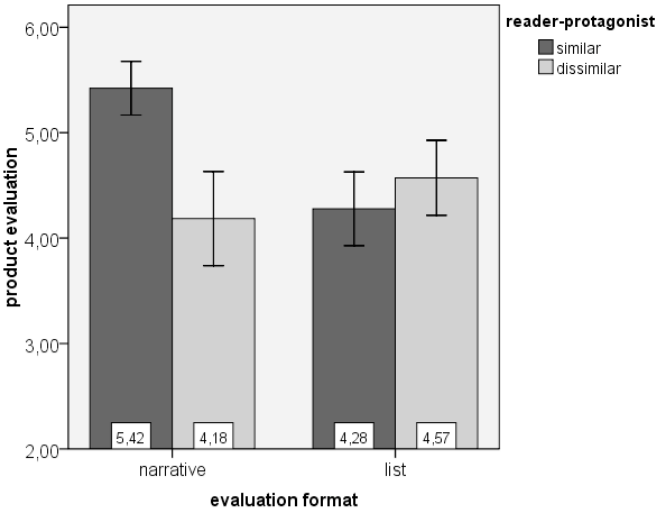

Figure 4.1: Product evaluation as a function of type of evaluation format and reader-protagonist (dis)similarity (Study 1).

Follow-up contrast results for the bulleted list conditions showed no differences for a similar or a dissimilar reader-protagonist (list: similar vs. dissimilar, $t < 1$), whereas the narrative with the similar reader-protagonist was evaluated significantly more positive than the narrative with the dissimilar reader-protagonist (narrative: similar vs. dissimilar: $t(89) = 2.18$, $p < .05$). Product evaluation in the similar reader-protagonist narrative is significantly higher than the individual list conditions (narrative similar vs. list similar: $t(89) = 2.19$, $p < .05$, narrative similar vs. list dissimilar: $t(89) = 1.64$, $p = .05$, one-tailed).

Hypothesis 1b proposed that transportation would mediate the influence of evaluation format and reader-protagonist (dis)similarity on product evaluation. Following Baron and Kenny's (1986) mediation steps, regression shows a significant effect of the format by (dis)similarity interaction on product evaluation ($\beta = .22$, $t(89) = 2.07$, $p < .05$). As expected the means for the transportation measure across conditions showed a similar pattern to evaluations (narrative similar = 4.11, narrative dissimilar = 2.88, list similar = 3.33, list dissimilar = 3.38). Importantly, an interaction effect for the independent variables on the transportation measure was shown to be significant ($\beta = .23$, $t(89) = 2.25$, $p < .05$). Further, transportation significantly influences product evaluation ($\beta = .48$, $t(91) = 5.15$, $p < .001$). Finally, when including transportation in the original analysis for product evaluation, transportation remains significant ($\beta = .44$, $t(88) = 4.57$, $p < .001$), but more importantly the format by (dis)similarity interaction term becomes insignificant ($\beta = .11$, $t(88) = 1.17$, $p > .24$), supporting Hypothesis 1b. A Sobel (1982) test confirmed that the indirect effect is present ($t(88) = 2.01$, $p < .05$).

DISCUSSION

In Study 1 we found that after reading a narrative with a similar protagonist, participants evaluated the Ebook more positively than those who read a narrative with a dissimilar protagonist. A difference between similar and dissimilar protagonists was not found in the list format conditions. Further, the Ebook was evaluated more positively by those reading a narrative with a similar protagonist versus those reading a bulleted list with either a similar or dissimilar reader-protagonist. Our theoretical explanation for these effects was supported by the identification of the mediating effect of transportation. It seems that participants in our study were effectively transported when a narrative format was utilized and the protagonist was similar to the participant, but not when the protagonist was dissimilar. These findings were not influenced by differences in task involvement of the participants[5]. Thus, transportation was present because participants experienced the text differently depending on the evaluation format and reader-protagonist (dis)similarity, not because they put more effort and concentrated on completing one task versus another.

Our product evaluation list condition had high face validity. However, one could argue that compared to the narrative, the list utilized in this initial study was more product focused and less protagonist focused, which could have influenced the effects identified. In Study 3 we address this issue by altering only the narrative structure between these two formats, and replicate the effects identified in the present study.

[5] Task involvement is only one of the many types of involvement. Narratives incite feelings of perceived self-relevance, which is related to involvement. However, a distinct characteristic of narrative transportation is a feeling of self-emplacement in the story (i.e., experienced participation). Therefore, narrative transportation might be a specific type of involvement, but highly distinguishes itself by its own characteristics and contribution (Argo et al. 2008; Escalas 2007; Wang and Calder 2006).

Study 2

This study tested the notion that the negative effect of dissimilarity between reader-protagonist in a narrative can be mitigated by explicitly instructing the reader to take the perspective of the protagonist. We expected that a formal self-emplacement instruction would enhance the level of transportation, even in the dissimilar reader-protagonist condition. Study 2 also sought to replicate the findings of Escalas (2007) which demonstrated that transportation elicits positive emotions on the part of the reader.

The study used a 2 (instruction: protagonist perspective instructed vs. no perspective instructed) x 2 (reader-protagonist (dis)similarity: similar vs. dissimilar) between-subjects design. Similar to Study 1, participants were recruited at activity centers in a large city in Western Europe. Ninety-nine participants between the age of 55 and 80 were recruited for the study (with a mean age of 64). Fourteen participants were excluded from the analysis for non-response and/or failure to follow instructions in completing the study.

METHOD

The methodology employed in this study followed that of Study 1 with the following exceptions. First, only narratives were used in this study. Second, the reader-protagonist (dis)similarity manipulation used Canada for the similar protagonist, whereas the dissimilar protagonist remained from Morocco. Third, the instruction manipulation followed Study 1 for the no perspective instructed condition, whereas the perspective instructed condition explicitly asked readers to see themselves as the protagonist.

No perspective instructed (following Study 1):

> On the internet, we found a message in a forum about products. Somebody left a message on the forum about the experiences of Matthew, who moved from Canada to [name of Western European country] a while ago, with the product Ebook. Matthew is the main character in this text. It is important that you attentively read the text about Matthew. Read the text in one run.

Protagonist perspective instructed:

> On the internet, we found a message in a forum about products. Somebody left a message on the forum about the experiences of Matthew, who moved from Canada to [name of Western European country] a while ago, with the product Ebook. Matthew is the main character in this text, but the main character could also be any other, like yourself. It is important that while you are reading attentively, you imagine yourself as the main character of the text. Use your imagination and visualize the situation, you are doing what Matthew is doing, and you see what he is looking at. Read the text in one run.

Fourth, a manipulation check for instruction was added (i.e., a seven-point Likert scale: While reading, I constantly focused on being the main character of the text not at all/very much). Finally, a question about the elicited positive feelings was also added (Did the text elicit positive feelings for you, not at all/very much).

RESULTS

The instruction manipulation check showed only a significant main effect for instruction indicating participants

who were explicitly instructed to see themselves as the main character did so (perspective instructed = 5.43, no perspective instructed = 3.37, $F(1, 81) = 33.67$, $p < .001$). Similar to Study 1, the manipulation check on reader-protagonist (dis)similarity showed only a main effect for (dis)similarity, validating the manipulation (similar = 3.12, dissimilar = 2.14, $F(1, 81) = 6.93$, $p < .05$). Also similar to Study 1, the involvement measure showed no differences between conditions and no relation to transportation.

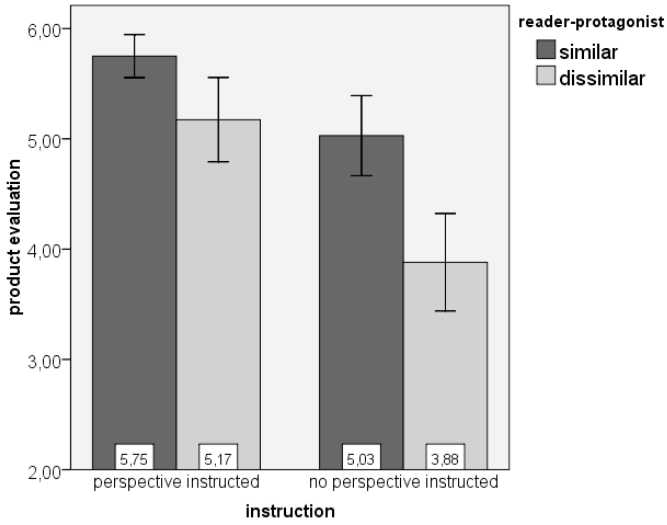

Figure 4.2: Product evaluation as a function of perspective instruction and reader-protagonist (dis)similarity (Study 2).

The product evaluation measure ($r = .90$, $p < .001$) showed a main effect for instruction (perspective instructed = 5.47, no perspective instructed = 4.39, $F(1, 81) = 8.06$, $p < .01$, see Figure 4.2). Showing support for Hypothesis 2, when explicitly instructed to take the perspective of the protagonist, participants across similar and dissimilar conditions raised their evaluation

of the product. More specific, a planned contrast between the dissimilar reader-protagonist conditions showed a significant difference (dissimilar: perspective instructed = 5.17, no perspective instructed = 3.88, $t(81) = 2.65$, $p < .05$). Thus, the negative effect of a dissimilar reader-protagonist was mitigated by the explicit instruction. Interestingly, the main effect also showed a benefit for instruction in the similar reader-protagonist condition.

Further, replicating Study 1, we also identified a main effect for reader-protagonist (dis)similarity across instruction conditions on the product evaluation measure (similar = 5.45, dissimilar = 4.56, $F(1, 81) = 5.92$, $p < .05$). Specific to our first study, a planned contrast showed that in the no perspective instructed conditions a significant difference between the similar and dissimilar conditions was realized (no perspective instructed: similar = 5.03, dissimilar = 3.88, $t(81) = 2.17$, $p < .05$). The instruction by reader-protagonist (dis)similarity interaction was not significant ($F < 1$).

The transportation measure ($\alpha = .70$) showed only a main effect for the instruction manipulation (perspective instructed = 4.16, no perspective instructed 3.47, $F(1, 81) = 5.59$, $p < .05$). Further, a planned contrast for only the dissimilar conditions showed a significant difference (dissimilar: perspective instructed = 4.17, no perspective instructed = 3.13, $t(81) = 2.77$, $p < .01$). In this study, transportation was shown to mediate the instruction effect on product evaluation. Regression analysis first showed a significant main effect of instruction and reader-protagonist (dis)similarity on product evaluation (instruction: $\beta = -.29$, $t(81) = -2.84$, $p < .01$, reader-protagonist (dis)similarity: $\beta = .25$, $t(81) = 2.43$, $p < .05$). Second, the instruction main effect predicted the transportation results ($\beta = -.25$, $t(81) = -2.36$, $p < .05$), and transportation significantly influenced product evaluation ($\beta = .59$, $t(83) = 6.66$, $p < .001$). Finally, when

including all variables in the regression on product evaluation, the contribution of transportation remained significant ($\beta = .52$, $t(80) = 5.71$, $p < .001$), while the significant effect of instruction disappeared ($\beta = -.16$, $t(80) = -1.78$, $p > .07$, the reader-protagonist (dis)similarity effect remained significant: $\beta = .18$, $t(80) = 1.99$, $p = .05$). The Sobel test was also significant ($t(80) = -.22$, $p < .05$).

Finally, for the positive emotions measure we identified main effects for both instruction ($F(1, 80) = 3.64$, $p = .06$) and reader-protagonist (dis)similarity ($F(1, 80) = 9.27$, $p < .01$). Following Escalas (2007), regression analysis showed a positive effect of transportation on positive feelings ($\beta = .57$, $t(82) = 6.34$, $p < .001$).

DISCUSSION

Our second study has shown that explicit instructions to take the perspective of a dissimilar other can mitigate the negative effect of a dissimilar reader-protagonist for transportation and resulting product evaluations. By following the outlined instructions, participants seem to be able to overcome initial disinclination towards the dissimilar protagonist and are transported into the narrative. They are motivated to become one with the dissimilar protagonist and see themselves in the narrative. Importantly, the manipulation check on reader-protagonist (dis)similarity was significant, so participants in both dissimilar conditions were aware of the ethnicity of the protagonist. Again, our results showed that transportation is a mediator of the effects. With explicit instructions more transportation was elicited and this resulted in more positive product evaluations. Importantly, a main effect was noted for reader-protagonist (dis)similarity on product evaluation, replicating the effect found in the narrative conditions of Study

1. Finally, some evidence was provided that positive emotions are produced during transportation (Escalas 2007).

Study 3

Study 3 has three goals. First, we seek to test whether the negative effect of a dissimilar protagonist in a narrative can be mitigated when the dissimilar protagonist is from a non-dissociative out-group (Hypothesis 3). A second goal is to provide a strict test of the effect of narratives versus lists on transportation and product evaluation. In this final study, only the temporal order and logical interrelatedness of the information provided to the reader differs. A final goal of Study 3 is to demonstrate that the effects identified are driven by dissociation and narrative transportation and not by liking of the protagonist.

A one way experimental between-subjects design with four distinct conditions was used (i.e., a narrative with similar reader-protagonist, a narrative with non-dissociative dissimilar reader-protagonist, a narrative with dissociative dissimilar reader-protagonist, and a list with similar reader-protagonist). Ninety-five men from a consumer household panel participated, aged between 55 and 81 (mean age = 66). Twelve participants were excluded from the analysis for non-response and/or failure to follow instructions in completing the study. Participants were living in the same large Western European city as participants in Studies 1 and 2. Unlike the previous studies, the third study was conducted in a lab facility at the sponsoring university. Only male participants were recruited to facilitate the reader-protagonist (dis)similarity manipulation. Further, panel membership provided age information that also enabled an appropriate (dis)similarity manipulation (see below).

METHOD

Pretest

To effectively identify (dis)similar reader-protagonists from an in-group, out-group and dissociative out-group for the reader, we conducted a pretest. The pretest identified and confirmed that the dissimilar protagonist from Study 1 (i.e., Mohammed who moved from Morocco to the country of the reader) was from a dissociative out-group. Using this as a contrast point, we identified both a similar, non-dissociative dissimilar, and a dissociative dissimilar protagonist using ethnicity, gender and age. Specifically, we identified and confirmed that 23 years old Anna represented a protagonist from a non-dissociative out-group, and Henk who was between 52 and 78 years of age represented a protagonist from an in-group for our participant population. Fatimah, 23 years old, who moved from Morocco to the country of the reader represented a protagonist from a dissociative out-group. Importantly, Henk was seen to be similar to participants, whereas Anna and Fatimah were seen to be dissimilar. Thus, Henk was identified as the similar reader-protagonist, Anna was the non-dissociative dissimilar reader-protagonist and Fatimah was the dissociative dissimilar reader-protagonist in Study 3. We note that Henk's age was set at three years younger than the panel member (the reader) in each instance to maximize the similarity and avoid hypothesis guessing.

In the third study, an identical amount of protagonist information was presented in both the narrative and list, so these conditions only differed in narrative structure through temporal order and logical interrelatedness. An example of a paragraph in the narrative and the transformation to the list format is provided:

Narrative:

> Meanwhile, the setting sun has started to shine on the screen of his Ebook. Henk notices that he is not having difficulty with reflections of the sun on the screen. He realizes that this is because the screen is made of digital paper, but how this works exactly he doesn't know. That doesn't matter, what matters to him is that it reads like paper, with more contrast than a normal screen.

Full-list:

- The light of a setting sun can shine on the screen of his Ebook. Henk notices that he is not having difficulty with reflections of the sun on the screen
- The screen is made of digital paper, but how this works exactly he doesn't know. That doesn't matter, what matters to him is that it reads like paper, with more contrast than a normal screen.

Dependent measures followed those from the previous studies with two exceptions. First, five additional items of narrative transportation from Green and Brock (2000, e.g., I imagined myself in the situations [Henk/Anna/Fatimah] was in) were added to our transportation scale to provide a more comprehensive measure. Second, an additional measure of likability of the protagonist was included (2 items on seven-point Likert scales: To what extent did [Henk/Anna/Fatimah] appeal to you / did you like [Henk/Anna/Fatimah], not at all/very much).

RESULTS

The manipulation check on reader-protagonist (dis)similarity was successful, (narrative similar = 3.40, narrative non-dissociative dissimilar = 2.58, narrative dissociative

dissimilar = 1.84, list similar = 2.90, $F(3, 79) = 3.60$, $p < .05$). Comparing contrasts within the narrative conditions showed differences between the similar and non-dissociative dissimilar conditions ($t(79) = 1.70$, $p < .05$ one-tailed) and between the similar and dissociative dissimilar conditions ($t(79) = 3.23$, $p < .01$) but not between the non-dissociative and dissociative dissimilar reader-protagonists ($t(79) = 1.43$, $p > .15$), meaning that the (male) participants were more similar to Henk who matched on gender, age, and ethnicity than to the younger females Anna and Fatimah. Similar to Study 1 and 2 the involvement measure was not significantly affected by our manipulations, nor correlated with induced levels of transportation ($\alpha = .87$).

Finding support for Hypothesis 3, a one way ANOVA showed a main effect (narrative similar = 5.18, narrative non-dissociative dissimilar = 5.39, narrative dissociative dissimilar = 3.89, list similar = 4.30, $F(3, 79) = 4.19$, $p < .01$, see Figure 4.3) on product evaluations (evaluation index, $r = .83$, $p < .001$). Comparing contrasts showed a difference between the dissociative dissimilar narrative condition and the isolated narrative conditions (narrative: dissociative dissimilar vs. similar, $t(79) = 2.71$, $p < .01$, dissociative dissimilar vs. non-dissociative dissimilar, $t(79) = 2.97$, $p < .01$), whereas no difference is present between the similar and non-dissociative dissimilar reader-protagonists (narrative: similar vs. non-dissociative dissimilar, $t < 1$). Thus, the negative effect of a dissimilar reader-protagonist in a narrative is alleviated with a non-dissociative dissimilar reader-protagonist, supporting hypothesis 3. Comparing the list condition with the isolated similar narrative or non-dissociative dissimilar narrative, we found a positive effect of narrative ($t(79) = 1.89$, $p < .05$, one-tailed, and $t(79) = 2.20$, $p < .05$), replicating results of Study 1 with a stricter test of a list.

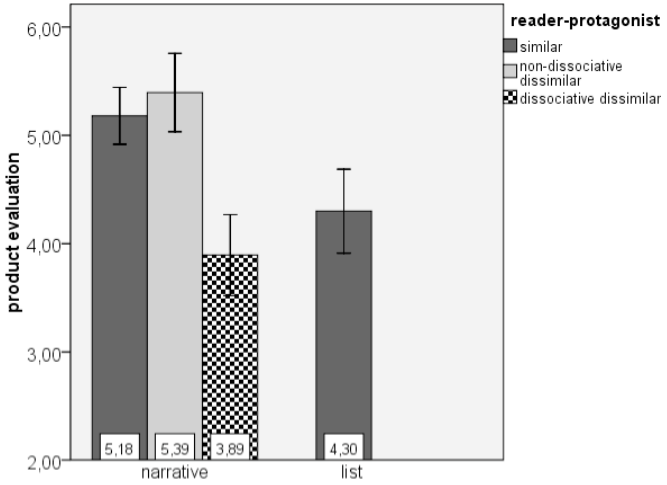

Figure 4.3: Product evaluation as a function of type of evaluation format and reader-protagonist (dis)similarity (Study 3).

A one way ANOVA showed a main effect on transportation (narrative similar = 4.84, narrative non-dissociative dissimilar = 5.04, narrative dissociative dissimilar = 4.05, list similar = 4.24, $F(3, 79) = 4.23$, $p < .01$). Testing for mediation, first two reader-protagonist (dis)similarity dummies were created (Sdummy for similar reader-protagonist and NDDdummy for non-dissociative dissimilar reader-protagonist), as well as a narrative/list format dummy. Sdummy and NDDdummy predicted product evaluations (Sdummy: $\beta = .39$, $t(79) = 2.71$, $p < .01$, NDDdummy: $\beta = .38$, $t(79) = 2.97$, $p < .01$), and transportation (Sdummy: $\beta = .37$, $t(79) = 2.53$, $p < .05$, NDDdummy: $\beta = .39$, $t(79) = 2.97$, $p < .01$). Product evaluation was significantly predicted by transportation ($\beta = .64$, $t(81) = 7.50$, $p < .001$). Finally, transportation when included as a covariate in the original analysis for product evaluation, showed

a significant effect of transportation (β = .58, t(78) = 6.34, p < .001), while it mitigated the effects of the (dis)similarity dummy variables (Sdummy: β = .18, t(78) = 1.46, p > .14, and NDDdummy: β = .16, t (78)= 1.44, p > .15). Sobel tests for Sdummy and NDDdummy were significant (t(78) = 2.53, p < .05, and t(78) = 2.96, p < .01).

Finally, for the likability of the protagonist measure (r = .48, p < .001) we found a main effect (narrative similar = 4.20, narrative non-dissociative dissimilar = 4.92, narrative dissociative dissimilar = 4.39, list similar = 3.98, F(3, 79) = 3.46, p < .05, see Figure 4.4). The non-dissociative dissimilar reader-protagonist in the narrative was more likable compared to the isolated other conditions (similar narrative: t(79) = -2.46, p < .05, dissociative dissimilar narrative: t(79) = -1.69, p < .05, one-tailed, similar list: t(79) = 3.07, p < .01).

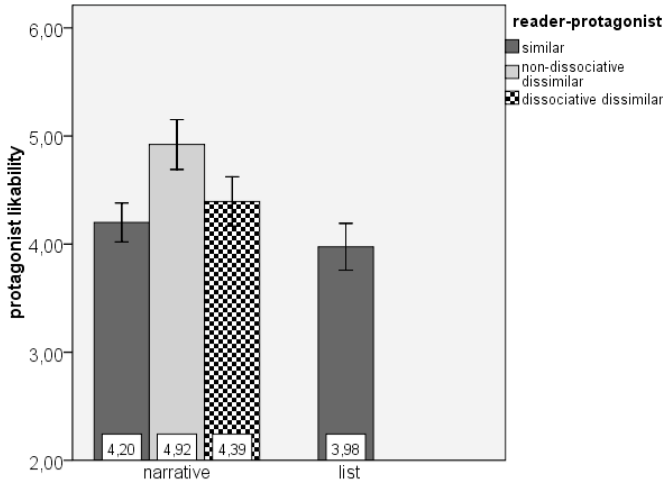

Figure 4.4: Protagonist likability a function of narrative / list and reader-protagonist (dis)similarity (Study 3).

As opposed to product evaluation results, no difference was present between the similar and dissociative dissimilar reader-protagonists (narrative: similar vs. dissociative dissimilar, $t < 1$). Thus, participants evaluated the protagonists differently between the narrative conditions, but in a different pattern compared to product evaluations.

DISCUSSION

Study 3 showed that not all dissimilar reader-protagonists limit the occurrence of transportation in a narrative. Our findings in this study showed that a dissimilar reader-protagonist from a non-dissociative out-group did not produce the negative effect of a dissimilar reader-protagonist from a dissociative out-group observed in a narrative in Study 1. It seems that an out-group must be dissociative to cause the reader to fail to transport into the narrative. In this study we also replicated the findings of Study 1 with a stricter test of a narrative and a bulleted list, we again found that effective transportation through a narrative (compared to a bulleted list) resulted in better product evaluations for the product featured. Finally, a different result pattern was identified for likability compared to product evaluations and narrative transportation. This finding excludes pre-study likability of the protagonist as a possible explanation of our effects. Specifically, the dissociative dissimilar narrative condition resulted in low levels of narrative transportation and evaluation, but equal levels of likability of Fatimah and Henk. If low pre-study liking towards (people from) Morocco would have been the underlying variable, low narrative transportation should have resulted in low likability of Fatimah, which was not the case.

General discussion

When testing really new products with consumers, mental imagery of the product's benefits and its use has been found to help consumers experience the product in a commercial advertisement. When testing intangible product concepts during NPD, narratives provide guidance to the imagination. New product narratives elicit transportation, which also allows the consumer to imagine and experience the product concept in a surrogate but conventional manner: by reading a story about someone else using the new product in their daily life. Narrative transportation goes beyond simple mental imagery, because the reader shares the experiences of product consumption as if he or she is the protagonist.

Theoretical contribution

This study contributes to our understanding of evaluation of product concepts in the NPD process in various ways. First, it explores an application of narratives in early product evaluation in marketing, an area that has received little attention in the literature. Second, we refine transportation theory by identifying how reader-protagonist (dis)similarity can be an important moderator of the incidence of transportation by a reader during NPD. We find that readers who share matching characteristics (e.g., ethnicity, gender, and/or age) with a protagonist are more likely to transport into the narrative and develop more favorable product evaluations. Comparatively, a highly dissimilar protagonist seems to inhibit reader transportation. Third, we show that the negative effect of a dissimilar reader-protagonist can be mitigated by motivating readers to transport into a narrative with a dissimilar protagonist with explicit instructions regarding reader perspective (Study 2). Finally, we demonstrate that the negative effect of a dissimilar reader-protagonist can

also be mitigated by choosing a dissimilar protagonist where the reader does not desire disassociation (Study 3). We exclude likability of the protagonist as a possible explanation for our results and ultimately combine social identity theory with narrative transportation theory.

In the present research, we used short narratives that allow for a direct application of theories on narration and narrative transportation. By using a narrative about a consumer using a product we were able to measure transportation with the scale originally developed by Green and Brock (2000) that asks to what extent the reader was immersed in the main character's life while reading a narrative. We note that our research was conducted with a population of older consumers. Our findings show that older readers have transportation patterns similar to that conceptualized by Green and Brock (2000). We also showed how reading a story about a new product use can elicit transportation, even when the story is relatively short and is offered with very simple reading instructions. This suggests that transportation is a relatively spontaneous process that does not depend on long introductions or an endured state while reading.

Substantive contribution

In the early phases of the NPD process, attributes and benefits of new product concepts can be described to consumers through easy and cheap to make bulleted lists (Page and Rosenbaum 1992). This allows for multiple concepts to be tested against one another, providing early insight into the potential of the concepts. Companies can then focus on the right concept early in the process, which helps to shorten development time and saves costs (Crawford and Di Benedetto 2008). However, conventional methods that are used for evaluation of new products do not always provide an accurate picture of product potential of new products (O'Connor and Veryzer 2001). One

reason for inaccuracy is the fact that consumers can lack knowledge and experience with product use and benefits. In a direct test between a bulleted list format and a possibly more insightful method, narratives, we find that narratives outperform lists in providing consumers a surrogate experience of using the product. By vicariously experiencing the use and the benefits through another individual, consumers are more confident about their opinion of the product concept, because they have a better image of the concept. Because of the vicarious experience, they are better able to give a valid evaluation.

Other methods that help consumers learn about really new product concepts have been employed, such as information acceleration (Urban, Weinberg, and Hauser 1996). Here, future conditions are simulated by exposing the consumer to all kinds of information (e.g., prototypes, word of mouth), with the aim to give a vivid impression of the future. Our study aimed to show that narratives are a much easier and cost effective way to provide a vivid experience for the potential consumer. Our results are promising and show that industry should explore alternate methods in NPD evaluations that are easy to implement.

Limitations and future research

We acknowledge the limitations inherent in our research. For example, by labeling the texts implicitly as fact (i.e., we told participants that the text was from an Internet forum), we might have directed people to use a more scrutinizing processing mode (Green et al. 2006). We anticipate this would have been equal for both the list and narrative experimental conditions, but this approach may have had an effect on the results. Also, we used a product (i.e., an Ebook) that by implication caused the protagonist in the narrative to read and become transported. Perhaps reading about a protagonist who is reading may have

influenced the level of transportation in our participants. Our research was also limited to one product and one consumer population – i.e., older consumers. We expect other products and other target groups to show similar results, but we have not tested this assumption. In general, the limitations in our studies provide opportunities for future investigations.

The operationalization of the reader-protagonist (dis)similarity across our studies through age, gender, and ethnicity is likely to be culture and time dependent. At the time of this research, an ethnicity dissimilarity created a strong disassociation on the part of the reader. This may be due to the age cohort that we utilized as participants and/or specific tensions existing between North Africans and Western Europeans. The identified non-dissociative dissimilarity on gender and age could also be culturally dependent, as the Western European country utilized in this research scores very low on the masculinity dimension in Hofstede's (2001) studies. Future research should further investigate dimensions like age, ethnicity, gender, education level, and occupation that can potentially create reader-protagonist dissimilarities in an effort to better understand specific moderators and other influencing factors that lead these dimensions to impact a reader's transportation.

We have found in our research that information in new product narratives need not be very explicit and fully detailed. Future research, however, could focus on making the narratives more explicit by providing a deeper understanding of how the product concept will be executed and how it will function on the market (e.g., information acceleration, Urban et al. 1996). How does providing more detailed information on a product influence narrative transportation? Another option could be to explore what type of explicit information or visual imagery can influence transportation in narratives (see Adaval, Isbell, and

Wyer 2007). In this instance, one could investigate the total amount of information provided (Klink and Athaide 2006), or the relevance of information (Hoorn, Konijn, and Van der Veer 2003) in assessing impact.

Experiencing and seeing the use of a product in a narrative was found to improve product evaluations, but it would be interesting to explore how readers learn from narratives. Bower and Morrow (1990, p. 44) state: "[Readers] infer causal connections relating characters' actions to their goals" and "… patterns of temporary activation facilitate comprehension." Polichak and Gerrig (2002) present a view of transportation as a participatory response to narrative. They label this "side-participation" where the reader wants to help the protagonist to solve the goal and the reader plots and re-plots the events to see how things could have gone differently. In this instance, the participatory learning that takes place on the basis of processing cause-effect relationships in the narrative fits new product learning of feature benefits. Testing how transported consumers learn through narrative experience, and draw further implications for personal use, is a potential research direction relevant to the narrative transportation literature and NPD testing.

Chapter 5 is based on: Van den Hende, Ellis A., Jan P.L. Schoormans, and Dirk Snelders. Using Narrative Transportation to Enhance Consumers' New Product Comprehension, manuscript prepared for the European Association for Consumer Research (2007) Milan, Italy.

Chapter 5 aims to show evidence of consumer learning and understanding through narratives. It demonstrates the positive effects of narrative transportation on non-expert consumers' new product comprehension.

5

NARRATIVES AND EXPERTISE

INTRODUCTION

Does Albert Einstein's statement "imagination goes beyond knowledge" also apply to really new products and non-expert consumers? Consumers generally have limited knowledge about the possibilities and benefits that really new products could offer to them. Really new products are products that comprise a new technology, offer a new benefit to the consumer and/or require new behavior to be learnt (Veryzer 1998b). At some point, consumers need to acquire new product knowledge for a better comprehension of the product. Comprehension is defined as an understanding of how the product can be used and what consequences follow from such use (i.e., the utility of the product), and knowing how the product functions (Graeff 1995). A lack of understanding of the new product increases consumers' uncertainty towards the benefits of the innovation (Hoeffler 2003) and disables most consumers to accurately estimate its functionality and benefits (Tauber 1974).

Consumers who have a better understanding of new products than the average consumer are referred to as expert consumers or lead users (Lilien et al. 2002; Von Hippel 1986).

Lead users typically experience needs unknown to the wider public and sometimes have self-developed work-around solutions to these needs. Expert consumers possess knowledge from the general product category or secondary base domain which helps them to estimate the functionality and benefits of the new product (Schoormans et al. 1995; Sujan 1985). This expertise facilitates the comprehension of the product attributes (Schoormans et al. 1995).

An important moderator of expertise would be a vivid experience of the new product, because it could improve the new product understanding of non-expert consumers. Narratives can provide a vivid product experience through narrative transportation (see Chapter 3 and 4). Narratives are processed differently from non-narrative information, in that a narrative transports the reader/listener mentally to another world that has its own set of rules and situations (Gerrig 1993; Oatley 2002). This process of 'transportation' assists consumers in imagining what it will be like to use the new product and making inferences about its attributes and benefits.

With the present research we contribute to narrative transportation theory and studies in memory and cognition by showing that non-expert consumers do not understand the new product innovation as well as expert consumers when they do not get transported into a new product narrative. However, this difference is alleviated when transportation is high. These results are generally relevant for marketing and consumer research, where consumer understanding is crucial for evaluation and adoption of really new products.

Consumer expertise and narrative transportation

In the case of radical innovations, consumers lack direct knowledge about the product. This, however, does not mean that consumers have no references to the new product at all. As

indicated by Moreau, Lehmann, and Markman (2001, p. 15), "consumers' ability to understand and represent an innovation is structured and/or constrained by their existing category knowledge." Knowledge in the primary base domain is knowledge with respect to directly comparable products. Knowledge in the secondary domain is knowledge about products that do not share the same benefits with the new product but are comparable in terms of the underlying technology or need. For innovative products expert consumers have product knowledge of at least the secondary base domain, for example, because they have experience with the (general) use situation in which the product is used or because they already experience the need.

Both knowledge in the primary base domain and knowledge in a secondary base domain affect the comprehension of new products. Past research suggests that prior knowledge facilitates the comprehension of new information in some situations and attenuates learning of new information in other situations (see for an overview Wood and Lynch Jr 2002). Lee and Shocker (2007) show that consumers with prior knowledge are much better at assimilating incongruent information, like in the case of really new products. This means that expert consumers who are familiar with the need in a product domain will outperform consumers with a lower level of expertise in new product understanding. We propose that storytelling facilitates non-experts' new product understanding.

Early concept narratives employ a description or depiction of an outside domain (i.e., the world of a virtual user) to explain the new product. In an early concept narrative that is used for consumer research a person is using a new product (concept) in a specific setting (Van den Hende et al. 2007). An early concept narrative includes the usage situation of the product, its benefits, and its attributes. The storyline of such narratives typically

follows a classical storyline, described by Aristotle as starting with an exposition where the main character (the protagonist) is introduced and his/her intentions or goals, continuing in a plot of actions and events, and resulting in a climax and resolution (Tierno 2002). The impact of narratives on consumers comes about through the process of transportation, which is a concept that goes beyond imagination. Transportation into a narrative world is conceptualized by Green and Brock (2000, p. 701) as "a distinct mental process, an integrative melding of attention, imagery and feelings."

Transported readers imagine the story, share the emotions present in the story and are focused on the story. Single effects of imagery, emotions and attention on consumer behavior are numerous. MacInnis and Price (1987) have defined imagery as a process by which sensory information is represented in working memory. By imagining something, people become engaged with the activities and experience them. As a result, consumers have shown increased perceived likelihood of an event (Carroll 1978; Gregory, Cialdini, and Carpenter 1982), and more confidence in their evaluation (Koehler 1991). Next to these imagery effects, emotional impact and attention facilitate recollection and reconstruction of events (Boyd 2009).

Transportation has been shown to lead to changes of prior believes and to less counter arguing and to more protagonist liking, (Green 2004; Green and Brock 2000). Also, transported readers evaluate products more favorably (Escalas 2007) and experience the surrogate transportation experience as a real experience (Green 2004). Marketing research demonstrated the relationships between narrative transportation and positive emotions (Escalas 2004), empathy (Argo et al. 2008), and intrusion (Wang and Calder 2006). In the case of early concept narratives, transportation can be seen as being immersed in a narrative and experience the use of the product as a surrogate

personal experience with the new product. While nobody will ever be present in real life at a mad tea party with a hatter and a talking hare and dormouse like Alice in Wonderland, her experiences learn the reader about being curious and persistent. Similar, in new product narratives the protagonist demonstrates the use of the product. The reader can learn from the protagonist by imitating the use of the new product trough narrative transportation.

Taking the effects of narrative transportation and expertise together, when experienced levels of narrative transportation are low, expert consumers can recognize the need of the user in the story and will be able to draw inferences from personal experiences. Non-expert consumers have less opportunity to draw comparisons between the new product and personal experience and will therefore show lower levels of product comprehension.

However, non-expert consumers' product comprehension can take advantage of high levels of transportation because the vivid transportation experience enables the product and its use to transpire. Storytelling is one of the oldest ways of communication and knowledge transfer, and people use it to learn from others (Boyd 2009). Thus, this surrogate, but highly personal experience with the new product, could explain the use and benefits in a "natural" way. Through narrative transportation, people have a vivid image, pay more attention and share the emotions of the main character, which facilitates reconstruction and memory of the story. Expert consumers' product comprehension, however, might not benefit from high narrative transportation. The personal experience of experts is sufficient to understand the product and the narrative "surrogate" experience cannot enhance product comprehension significantly.

H1: narrative transportation moderates the effect of expertise on new product comprehension. When transportation is low, experts have a better understanding of the new product than non-experts. When transportation is high, non-expert and expert consumers will have similar levels of new product comprehension.

In the next section we will outline our research methodology, followed by the results, conclusion and general discussion.

METHOD

Respondents

Respondents had to represent potential users of the product and were therefore selected on age (25-50 years old) and education (middle and higher education). Data from 38 respondents (18 male, 20 female; mean age 40) from a non-student consumer household panel were included in the analysis (after we had dropped data from 3 respondents because of failure to complete the dependent measures). Respondents participated voluntarily and received compensation worth about 2 euros. We sent invitation emails with a personal link to an Internet questionnaire survey.

Stimuli

We utilized an early concept narrative that followed a classical storyline describing the protagonist, usage situation, intentions, actions, the product attributes, and the benefits (see Appendix C). The product was an interactive transparent screen applied in a shopping window that assists customers to obtain information on products on display and on products available in the store. The narrative portrayed a female protagonist shopping for clothing while obtaining information on the collection of

clothes, and matching accessories. Previous research (Green 2004; Green and Brock 2000) showed no effect of using protagonists of differing genders, and none was present in our sample. Concerning desired association with the protagonist (see Chapter 4) the female protagonist was dissimilar from the male respondent, but belonged to a non-dissociative out-group for the male respondents. The protagonist belonged to the in-group for the female respondents, and prior research showed that protagonists from a non-dissociative out-group or in-group for the reader similarly facilitate transportation (see Chapter 4).

Procedure and measures

The invitation email stated that respondents were going to evaluate a story in which somebody was using a product. The questionnaire itself started with questions assessing gender and expertise (i.e., familiarity with the need, in our case need for information during shopping for clothing). The latter was measured by three items on 7-point scales (Cronbach's alpha = .67, e.g., I often take a good look at multiple pieces of clothes on display in the show window before I enter the store, Before I enter the store I am fully aware of what's on display in the show window, and I often visit fashion related websites before I go to a retail store, strongly disagree/strongly agree). Next, an instruction followed to read the narrative attentively, which is a neutral reading instruction (Green and Brock 2000). Subsequently, after having finished the narrative, respondents completed an objective new product comprehension measure of 24 true/false items. Some examples are: According to the narrative, using the product helps to get you a discount (false), According to the narrative, the product allows you to read your email (false), or The product provides information on the store's collection and accessories (true). Respondents could score minimally zero and maximally 24 (high new product

comprehension) on this measure. Next, respondents completed a narrative transportation measure of ten items (adapted from Green and Brock (2000) on 7-point Likert-type scales (Cronbach's alpha = .76), such as: After the text ended, I found it difficult to put it out of my mind, and I could picture myself in the scene of the events described in the text, not at all/very much).

RESULTS

Regression analysis was used to test for the moderating effect of narrative transportation on the relationship between expertise and new product comprehension. Narrative transportation and expertise measures were centered and entered into the regression model as independent variables. Also, the interaction term (i.e., the centered and then multiplied narrative transportation and expertise variables) was entered as independent variable. Finally, the new product comprehension measure was the dependent measure into the regression model. A significant interaction between expertise and narrative transportation on new product comprehension was found (β = -.41, t = -2.58, $p < .05$). The interaction of these two continuous variables means that the regression of new product comprehension on expertise changes as a function of narrative transportation. No other effects were significant, in other words, expertise did not significantly predict new product comprehension (β = .13, t = .74, $p > .05$), nor did narrative transportation (β = .10, t = .61, $p > .05$).

To interpret the direction of the moderation we conducted "simple slope tests" (Aiken and West 1991). Simple slope analysis facilitates interpretation of the interaction between two continuous variables and is similar to a post hoc test of simple effects in ANOVA (West, Aiken, and Skrull 1996). In a simple slope analysis the effect of the predictor on the dependent

variable at specified levels of the moderator is examined (Cohen et al. 2003). In our study, we examined the effect of expertise on new product comprehension for those who had experienced high versus low levels of narrative transportation. The significance of this simple slope test indicates whether the slope of the simple regression of the dependent variable on the predictor variable at a specific value of the moderator is different from zero. Conventional values for the moderator are one standard deviation above and below the mean (Cohen et al. 2003; Preacher, Curran, and Bauer 2006; West et al. 1996). In our study, one standard deviation above the mean of narrative transportation was appointed as high transportation and one standard deviation below the mean as low transportation. For those who had experienced low levels of narrative transportation, the effect of expertise on new product comprehension was significant ($\beta = .88$, $t = 2.14$, $p < .05$). When experienced levels of narrative transportation were high, the effect of expertise on new product comprehension was not significant ($\beta = -.50$, $t = -1.52$, $p > .05$); non-experts and experts demonstrated similar levels of new product comprehension. Interestingly, though insignificant, the direction of the high transportation slope is negative.

In other words, when narrative transportation is low, those with more expertise understand the product better, but this effect is mitigated when narrative transportation is high. Thus, the difference in new product comprehension between non-expert and expert consumers is not present when more transportation is experienced. Non-expert consumers show similar levels of understanding compared to expert consumers when they have experienced the narrative vividly.

DISCUSSION

We advocated that narrative transportation can be used to inform consumers about a really new product. Expert consumers who were more familiar with the product need scored better on a new product comprehension task about the new product compared to non-experts when transportation was absent. When transportation was present, non-experts and experts showed similar levels of new product comprehension of the new product. The process of narrative transportation, through which consumers are immersed in simulative thoughts and experiences with the new product facilitated understanding for people who did not have experiences with the need beforehand. Transported consumers used narratives to become immersed in the experiences of the portrayed user, and stay focused on the provided information. Being transported helped non-expert consumers to 'fill in' the gaps between their lack of expertise and the product as portrayed in the narrative. Thus, if the narrative succeeds in enhancing the consumer's transportation, the narrative can help improve non-expert consumers' new product comprehension.

Writing a narrative that includes the context of the product, the usage situation, the product attributes, and benefits in a narrative format, can encourage new product comprehension. This is in line with extant literature, which states that the context of a product can help consumers to interpret unfamiliar products (Meyers-Levy and Tybout 1989), and that showing a usage situation, the product attributes as well as the benefits explicates comprehension (Graeff 1995). To test our hypotheses we had to define prior knowledge with our really new product.

Consumers cannot have prior knowledge with respect to the product attributes and benefits of really new products. However, they may have knowledge about products that do not share the

same benefits with the new product, but are comparable in terms of the usage domain and need within the domain. Expertise is therefore here defined as expertise with the need, more specifically, experience with looking for product information and comparing products in a specific use domain, namely fashion and a fashion store. Our results indicate that, in concordance with Schoormans, Ortt, and De Bont (1995), prior knowledge of a secondary base domain can be used as an assessment of expertise of a new innovation.

Transportation showed to be most helpful for non-expert consumers. These consumers were found to depend more on transportation for their comprehension of the new product. When transportation was low, experts demonstrated higher product comprehension than non-experts. Research shows that experts are better able to mentally represent the problem context and are capable of evaluating a product at both the product category and attribute levels (Peracchio and Tybout 1996; Sujan 1985). When transportation was high, the observed difference in product understanding of experts and non-experts was mitigated: experts and non-experts showed similar levels of product understanding. Increased levels of transportation at one standard deviation above the mean of transportation resulted in a not significant slope in the negative direction. The critical level of narrative transportation was around +1.5SD above the mean of narrative transportation. This suggests a negative impact on experts' product comprehension when narrative transportation is very high. Other research has shown inferior learning by expert consumers due to inattention at encoding of new information: expertise resulted in consumers being less attentive to the provided information due to which they drew premature conclusions about the new product (Wood and Lynch Jr 2002).

In our study, when transportation was high, a similar process to inattention might have been present. Expert consumers could

have failed to update existing knowledge structures when they had prior knowledge about the needs and possible benefits of the concept. The story might have geared their attention to the story elements and less to the new product information. Consumers often fail to revise narrative information: when they have constructed expectations at the beginning of a narrative they do not update these expectations after a refutation statement (Rapp and Kendeou 2007). Increased levels of transportation (and thus, attention, imagery and feelings) could have made these experts less aware of the differences between the new product solution and existing mental schemes of their current solution. When narrative transportation was low in our study, experts might not have suffered from inattention because they were not distracted by the story and could focus on the product information.

Another explanation of the negative slope could be that expert consumers who were highly transported could have suffered from too much simulation. They could have over-simulated the use of the new product. In a research by Schlosser (2006), consumers falsely simulated product attributes after a virtual product experience that involved high levels of imagination. In our research this effect might have been amplified by prior knowledge. Expert consumers can anticipate on possible outcomes because they can use their prior experience (as opposed to non-experts who need the provided narrative explanation of the events and product outcomes to build up experience). People tend to memorize events and intentions more than they remember details (Boyd 2009). When reconstructing the elements in the narrative, expert consumers' simulation of the events and outcomes could have become blurred with their prior experience. They could have got confused between personal experience and the surrogate experience of the fictitious narrative about the new product. Their simulation could have gone beyond the prior experience

and the surrogate experience. These two possible explanations, inattention and over-simulation, are interesting directions for further research.

Our research limitations are also opportunities for further research. We used continuous measures for our independent variables. Thus, transportation was not present to the same extent with all respondents, while the same narrative and instructions were used. Further research could provide a stricter test of the variables by manipulating them. Furthermore, story elements familiar to the reader could elicit more transportation, as has been suggested by Green (2004). As expected, correlation between transportation and expertise was present in our research ($r = .35$, $p < .05$), but there was no evidence for multicollinearity between our independent variables (Hair et al. 2009; Stevens 2002). Finally, our study was a single laboratory experiment, and replications and extensions, such as other expertise conceptualizations, are needed to improve the generalization of our results.

Our results are interesting for several reasons; on a practical level they demonstrate a better employment of lay consumers in the evaluation of early concepts of really new products. Although the employment of expert consumers in the new product development process has created success stories (e.g., von Hippel et al. 1999), it also has some downsides, like the difficulty of finding experts and the issue whether they are representative for other potential consumers (Lynn et al. 1996; O'Connor and Veryzer 2001; Wood and Lynch Jr 2002).

On a more theoretical level, we have shown the moderating effect of narrative transportation on the effect of expertise on new product comprehension. By doing so we contribute to the growing literature on transportation, that in the past has focused more on the relation between transportation and persuasion,

rather than new product comprehension (e.g., Escalas 2004, 2007; Green and Brock 2000). In many instances, information to consumers has an educational rather than persuasive purpose. Thus, our research has implications for research areas of consumer behavior and marketing (e.g., testing new concepts during product development, or packaging research), as well as research areas where consumers lack information, such as politics or economic socialization. In all these areas, narratives can learn consumers about complex issues.

6

GENERAL DISCUSSION

The presented research aimed to study the effects of really new stories on consumer understanding and evaluations of really new products in the early phase of the new product development (NPD) process. More specifically, this research studied the effectiveness of really new stories by 1) assessing the obtained evaluations with narratives, 2) explaining the (positive) effects of narratives in the NPD context, and 3) seeking to examine factors that influence this effectiveness. A really new story is a short story in which a main character is using a new product. The story follows a typical storyline and starts with an introduction of the main character and the setting, continues with product use and outcomes, and closes with leaving the setting.

First, narratives consistently provided more positive evaluations of a really new product compared to bulleted lists (i.e., non-narratives) that described the same really new product. These positive narrative attitudes were similar to attitudes towards a prototype of the really new product, supporting the validity of narratives for early consumer evaluations. Multiple measures, such as evaluations of the product, interaction,

aesthetic, and anticipated ease of use provided similar patterns of results.

Second, narrative transportation mediated the results of evaluation format manipulations (i.e., narratives vs. non-narratives) on product evaluations. Narrative transportation is a mixture of imagery, feelings and attention. When people read a narrative or watch a movie, they experience the excitement of being transported into the world portrayed in the story. Consumers "connect" with the main character and it feels as if they are the main character in the story, having a surrogate (learning) experience of the product's use. This experience alleviates the disinclination toward really new products, resulting in a positive effect of narratives on consumers' attitudes. Thus, as narrative transportation mediated the observed effects, it was demonstrated to be the underlying process of the more positive narrative results. This mediation result was replicated in multiple studies. Providing further evidence for the positive effects of narrative transportation, non-expert consumers who were highly transported into a narrative showed similar new product understanding compared to experts. Narratives seem to be a learning mechanism for people who might not yet be aware of their need for the new product.

Third, important factors that have an effect on evaluation of narratives for NPD concept testing are both the kind of protagonist (i.e., the main character in the narrative) and the kind of visuals that are used. In narratives, a protagonist who was dissimilar and dissociative to the reader yielded more negative transportation and product evaluation results than a protagonist who was similar to the reader or a protagonist who was dissimilar but non-dissociative to the reader. However, a dissociative dissimilar protagonist can be employed when explicit instructions to take the perspective of the dissimilar other are given, because such instructions mitigate the negative

effect for transportation and resulting product evaluations. Furthermore, narratives with drawings or photos of the really new product were equally effective in transporting the consumer, and both were more effective in transporting the consumer when compared with an animated sequence of the storyline (i.e., a movie of photos in which the interactive elements of the new product were animated). Another study that compared drawn images with a narrative or a non-narrative, movies, and a prototype demonstration extended these visual format findings for narrative transportation and resulting product evaluations.

THEORETICAL CONTRIBUTIONS AND MANAGERIAL IMPLICATIONS

The results of the research in this thesis are interesting for several reasons. Contributing to narrative theory, first, narration is demonstrated to be the key variable for early evaluations of really new products. Narrative transportation is incited within the reader through a relatively short story about somebody who is using a really new product. Thus, narrative transportation even occurs when people read a couple of paragraphs about something they do not know. Narrative transportation mediates the effects of (non-)narrative evaluation formats on attitudes. Second, narrative transportation is demonstrated to be a moderator of the effect of expertise on new product comprehension. When transportation is low, non-experts show lower product comprehension than experts, but this difference is absent when transportation is high. Examining this moderator provides a contribution beyond the previously documented effects of expertise on comprehension. Third, reader-protagonist (dis)similarity is shown to moderate the effect of a (non-)narrative evaluation format on evaluations. In a non-narrative

format, no effect of a reader-protagonist (dis)similarity is present, while in a narrative a protagonist who is more dissimilar to the reader produces a negative effect on transportation and resulting product evaluation. In a follow-up study, it is shown that dissimilarity only produces more negative transportation when dissociation is desired, contributing to social identity theory. When no dissociation is desired, a similar and dissimilar reader-protagonist produce similar results. Finally, showing that a photorealistic or drawn format of the visual that can accompany a narrative does not produce different levels of narrative transportation advances prior research about narratives and visuals.

The results are interesting for NPD and marketing theory and practice. Quantitative customer research methods that are currently available to test product concepts did not effectuate satisfying results for really new products. Consumers tend to have a disinclination to change, and therefore to products that offer new benefits or require new usage behavior. Because the products are really new, consumers easily fail to understand the benefits of really new products, and turn the really new product concepts down. Narratives, potentially accompanied by visuals, elicit enough narrative transportation about the use of the product concept to be experienced by the consumer as a real product use experience. Consumers show increased product comprehension and more positive product evaluations through narrative transportation. Therefore, narratives are a valuable customer research technique and can remove initial disinclination towards a really new product concept. Furthermore, narratives are easy and relatively inexpensive to administer. This is especially useful when firms seek to test multiple concepts to gain as much feedback from consumers as possible. Thus, narratives offer NPD managers a valid and cost

effective customer research technique to test early concepts. This research technique is suitable for non-expert consumers.

Commonly used methods for collecting consumer input on product concepts early in the NPD process are bulleted lists, narrative storyboards, and lead users. Narratives, as opposed to bulleted lists, elicit more self-relevant imagination. Narratives are part of the range of inexpensive and simple to develop materials for concept tests. Simple narratives enable non-expert users to imagine really new products that they had no prior experience with. Narratives outperform bulleted lists for evaluation purposes of really new products, but this does not seem to affect the use of bulleted lists as evaluation method for less new product concepts. For developing and testing really new products, firms often use lead users for input and feedback. Narratives can be a complement to the lead user method. Next to lead users as expert users, non-expert users who experience narrative transportation can provide valuable input. This expands concept-testing possibilities, as non-experts represent the majority of the end users and are easily accessible.

Consumers' narrative processing strategies provide support for the use of really new stories during the predevelopment phase of the NPD process. Research shows that consumers judge the life of a politician as a whole when explained with a narrative and evaluate each life event separately when explained through a list (Adaval et al. 2007). Building on this research and extending the research in this thesis in terms of narrative processing, I recently conducted an additional study in which I manipulated evaluation format (narrative vs. non-narrative) and processing strategy (analytic vs. holistic) in a between subjects design. The manipulation of evaluation format followed procedures similar to Study 3 in Chapter 4. The processing strategy manipulation trained participants during a seemingly unrelated first assignment of the study to evaluate products analytically vs.

holistically (i.e., thinking about the usefulness vs. the overall appearance). In the follow-up assignment, participants unconsciously carried over this processing strategy. Pretesting confirmed the carry over. The ANOVA results showed a significant interaction effect on product evaluations: The really new product in narrative/holistic evaluation condition received a significantly more positive product evaluation than the three other conditions. No differences were present between the analytically processed narrative and the two lists. Interestingly, when people read a narrative, holistic processing seems to match narrative processing, which effectuates positive evaluations. Early on in the NPD process, the holistic approach is possibly more desired to understand the bigger picture of the really new product application, its functions, and use of the major product parts (like demonstrated in Chapter 5). Other methods, such as conjoint analysis, can be used to refine product details such as the levels of the product features at a later phase of the NPD process.

Narrative NPD implications beyond concept testing

Early concept narratives have NPD implications beyond early concept testing. The narrative might be the language that describes the ongoing development of the product and the design process. As a communication tool, successfully tested narratives can make the project alive within a firm. They can create awareness for the project within the firm and serve as input for internal communication efforts (e.g., company magazines). As a next step, the narratives might keep the project alive during the multiple years of development. They could be the stories that people refer to when sharing their thoughts about the project. The product is first constructed in words to ultimately develop into a real product. During the development, discourses start to emerge surrounding the new product and

accordingly the product begins to claim its own identity. This identity is based on the stories that are told about it (Erickson 1995).

A narrative is a design tool that makes the user and the intangible product idea figuratively more tangible for the design team. Before ideation has started, narrative personas and use scenarios tell fictional people stories that help the design team to reflect on design implications for high priority market segments (Grudin and Pruitt 2002). Once the technology applications are ideated, constructing and updating early concept narratives could help to detect flaws in the line of thinking regarding functionalities of the product design. New insights develop after every round of development and hence, the narrative is updated too. The narratives could help new project members to quickly read up on (the historic development of) the project, which could give them some head start. Also, the narrative provides a common picture to different people from the multiple departments who work on the project. The narrative not only tells the story of the new product, but it also portrays the end user. The end user is an important, but difficult to grasp factor in design. A clear picture of the end user helps people from the departments that usually do not get in touch with end users to include the human factor that contributes to new product development (Carroll 2000a, 2000b; Grudin and Pruitt 2002; Sleeswijk Visser et al. 2005).

Once the product is developed, the narrative can help the diffusion and promotion of the product, company, and/or brand. The narrative could be present as conceptual development project on company websites to show the consumer future innovations (see for example www.vodafone.com). Marketing could use the narrative as prelaunch ingredient for a hype (Wind and Mahajan 1987) and

to generate word-of-mouth (Arndt 1967; Herr, Kardes, and Kim 1991).

Implications beyond NPD

The findings of narrative, visual, and protagonist effects on reader reception are broadly relevant for the development and advertising of products and services. The findings could also be applied to the marketing of products and services that depend on narration for their promotion and/or consumption (e.g., movie entertainment and books). Furthermore, the results have implications for blogging and online narrative communications (Van Laer and De Ruyter 2010). To conclude, at a more general level, the narrative results can be applied to education (see Slater and Rouner 2002). Knowledge of the effects of visuals and reader-protagonist associations could help the development of learning materials that transport. Narrative transportation might help people to experience what they hear or read, which makes make learning more fun and efficient.

LIMITATIONS AND AVENUES FOR FURTHER RESEARCH

The general limitations inherent in the studies in this thesis that provide opportunities for further research are discussed in this part. Specific limitations per study have been discussed at the end of every empirical chapter.

The present research did not examine the two constructs of narrative transportation and involvement in dedicated studies, nor did it include many individual difference measures. In Chapter 4, narrative transportation was explained to be different from task involvement. However, task involvement is only one of the many types of involvement. The feelings component of narrative transportation relates to involvement: narratives incite

feelings of perceived self-relevance. However, a distinct characteristic of narrative transportation is the imagery: self-emplacement in the story (i.e., experienced participation). Therefore, narrative transportation might be a specific type of involvement, but highly distinguishes itself by its own characteristics and contribution (Argo et al. 2008; Escalas 2007; Wang and Calder 2006). Besides involvement, individual difference measures (e.g., visual versus verbal processing strategies, Wyer Jr, Hung, and Jiang 2008) can deepen the research about narratives. Further research could investigate the relationships between narrative transportation, involvement, and individual differences.

The studies in this thesis used adaptations to the narrative transportation scale. Green and Brock (2000) built the original transportation scale and identified three components (i.e., possible subscales). Prior research aggregated all items and included the three components (Green 2004; Wang and Calder 2006), while other research used an adapted version of the scale that included the three components (Escalas 2007) similar to the approach of the studies in this thesis. The three components have been studied by De Graaf et al. (2009), but further research on the consistency of the narrative transportation scale could be an avenue for further research.

The present research used one main character in the (non-)narrative stimuli materials. Storylines often contain multiple kinds of characters – the good, bad, and sometimes ugly characters. Furthermore, facial expressions of people present on the images that could drive results were avoided. According to theory of mind (see Baron-Cohen 1995), people learn from facial expressions and gazing lines. In the present research, the main character was never the obvious good guy, but was more a guy. Personality traits or too many adjectives were avoided, however,

including these elements offers opportunities for further research.

Consumer negativity towards really new products is a well-studied phenomenon (see Tauber 1974; Ulwick 2002), and the present research aimed to understand the effectiveness of narratives in reducing the default negativism. The present research did not study this default negativism in depth, but utilized it as a point of departure. Future research could use established theories, such as availability heuristic, loss aversion, functional fixedness, and elaboration likelihood theories (Duncker 1945; Gourville 2006; Kahneman and Tversky 1979; Petty and Cacioppo 1979; Tversky and Kahneman 1974) to explain the default negativism for really new products from multiple perspectives.

The samples in the studies in this thesis always consisted of participants from 25 years up to 80 years old, representing potential users of really new products. However, due to increased connectivity and adaptation to multimodal processing of multiple sources of information, it could be that (groups of) consumers develop different information processing strategies. Being highly connected through various media, it could be that scanning texts instead of carefully reading them becomes a common way of processing texts. However, consumers will still be familiar with narrative transportation because they experience it when watching movies and or reading (comic) books. News websites are commonly read online texts. A quick scan of these websites shows news messages of 200+ words, similar to the length of early concept narratives. To conclude, further research could compare online and offline narrative transportation for different groups of consumers and take their default text processing behavior into account.

CONCLUSIONS

The quality of a narrative

Though I thoroughly investigated several factors of effectiveness of narratives for NPD, narratives are subject to particularity, ambiguity, and subjectivity. As Erickson points out (1996, p.31): "[Stories] are at odds with the scientific drive toward objective, generalizable, repeatable findings." The supposed power of narratives is their ability to make people more receptive to new product proposals. This power depends on the narrative content that is particular, ambiguous and subjective.

First, the particularity of a new product narrative is reflected in the described application. The narrative tells the story of a product possibility, being one particular product solution out of many possible solutions. The technology application described in the narrative is a direction for further development of the technology. In order to become an end product, the product concept will undergo further development and inherent changes. Thus, particularity possibly has an effect on predictive validity. This unavoidable caveat shows up in Chapter 3 where a prototype was compared with a narrative. The prototype was the benchmark and by using reversed engineering the early product application in the narrative was constructed. As a matter of fact, long development times and multiple changes to really new products provide an impossible comparison, whereas the comparative research in Chapter 3 made optimal use of all resources and information available for a straight and face valid comparison.

The second narrative implication, narrative ambiguity, reflects the different inferences and interpretations of the early concept narrative. People tend to fill in gaps in stories, assume that things that usually happen, also have happened in the

narrative (e.g., people who walk out a restaurant have paid for their dinner, even when this specific fact was not mentioned). People differ in their prior knowledge of technologies and needs. They have different frames of reference when they "enter" the story. People with different levels of expertise possibly allocate different attention to story elements. This effect was encountered in Chapter 5, where experts who were highly transported showed a pattern of decreased new product comprehension. This is similar to other concept test approaches in which within group differences are taken into account that are caused by stimuli ambiguity and individual differences.

The third narrative implication, narrative subjectivity, is reflected in the structure, and verbal and visual content of the narrative. The narrative forms the explanation of the product, and inherently has elements present that people could include in their evaluation, such as a use context, main character, and logical flow of information. In advertising, this effect is studied as attitude towards the ad versus attitude towards the brand (MacKenzie, Lutz, and Belch 1986). Is it undesired that people partly include an evaluation of the execution in their product evaluation instead of giving an evaluation of only the product? Marketers could argue that this is not a problem, as the narrative would give them the golden formula to clearly explain the product to the consumer and convince the consumer about the benefits and purchase. The market researcher who tests the product early in the NPD process could be less convinced: the beauty and colors of the drawing could be subject of evaluation, instead of the touch points and merits of the product idea itself. This is not different from other concept test approaches, as subjectivity is involved with decisions about what to show and what not to show to consumers.

Best practices – how to design really new stories

In the last part of the general discussion I will offer a number of guidelines to create effective early concept narratives for concept tests with consumers. I based these guidelines on the empirical research and my best practices of the research presented in this thesis. The guidelines describe concept test consequences of narratives in general, the kind of protagonist, visuals, length, and narrative professionalism.

First I discuss the general consequences of narratives for concept testing within NPD. This thesis demonstrated the effectiveness of narratives for early concept testing of product applications that are really new. In some cases narratives could be less effective for new product testing, because they cannot provide all kinds of possible information. More appropriate information to test could be available at later stages of the NPD process. A narrative can describe sensory information, such as smell, taste, and texture, and narrative transportation helps consumers to experience this description. However, consumers cannot be sure about, for example, the smell of a perfume until that smell has been in contact with their smell receptors. Toward the end of the NPD process, true and detailed look and feel of a new product could be more appropriate to test, whereas a narrative alone cannot provide this information. Furthermore, the results from Chapter 5 suggest that for expert consumers, very high narrative transportation does not facilitate new product comprehension. It could be that when products are incrementally new and similar to existing products, narratives are less useful because most consumers are experts in this case. The incrementally new product in the narrative might not match with prior experiences, which could interfere with new product understanding. It might also be boring to read a narrative about something that is familiar.

Regarding the choice of the protagonist in the really new story, the research in this thesis showed that a dissociative dissimilar protagonist for the reader evokes negative evaluations, suggesting the use of non-dissociative protagonists (Chapter 4, Study 1 and Study 3). It might sound obvious that a dissociative dissimilar protagonist evokes less narrative transportation and effectuates lower product evaluations as a consequence, but the practical guideline of this finding for concept tests is less obvious. Not using a protagonist who is dissociative and dissimilar to the reader implies that the sample should be highly homogeneous in terms of association preferences. Or, similar to adaptive conjoint studies, researchers should match every protagonist with the participant, similar to the similar reader-protagonist condition of Study 3 in Chapter 4. Another strategy would be to actively encourage reader self-emplacement in the story, as demonstrated in Study 2 in Chapter 4.

For the images, narratives are effectively inciting narrative transportation on the side of the reader when offered with either drawn images or photorealistic images. Some firms desire to use drawings, because they are easy and fast to provide and adapt. In the research collaboration with a multinational firm, an animated sequence of the storyline (i.e., a movie of photos in which the interactive elements of the new product were animated) that was utilized early in the development process was not as effective terms of narrative transportation as the aforementioned static images (Chapter 2). Photos and drawings have the advantage of form freedom when dealing with product ideas that do not exist yet. Static images can be drawn by hand or by 3D graphics programs. With drawn images, firms can explore various product design options. Photorealistic images could be useful when pictorial information of the context of the product is present (e.g., from prior context or end user/ethnographic research) and the firm decides to add a graphic of the new

product concept to the picture. When no detail is needed yet, drawn images provide sufficient information, which is especially true during predevelopment. Animations or movies would give away too much detail that might not be desired yet. Visuals can also disappoint when they do not match expectations (e.g., similar to responses after watching the movie after reading the original book – my vividly imagined Frodo Baggins looked different). Firms could also decide not to add images to the narratives to avoid any evaluation of the visual information. This thesis showed that when no images were added to the narrative (Chapter 4), narrative transportation was present and showed discriminating results compared to non-narrative texts.

From my best practices, I discuss the length of the narrative. Prior research demonstrated narrative transportation effects in texts of about 75 words about new running shoes (Escalas 2007). I used various narratives for the research in this thesis with different lengths (varying from about 250-650 words, see examples in Appendices B and C) and found narrative transportation to be present. The optimum length possibly depends on the newness of the product. The espresso stories (typically 25-75 words) mentioned in the introduction are probably too short to fully follow a standard storyline that includes a really new product that by itself demands more explanation than a known artifact as a chair or running shoes. The length mainly depends on the amount of uses of the product. In concept testing, the length of the text might be an issue if multiple concept narratives are presented to the same respondent (causing respondent fatigue). For narrative transportation, a long text does not seem to be a problem, as some books are over a 1000 pages. Thus, to apply the standard storyline of beginning, middle and end, and describe a really new product, the best practice is a minimum of about 200 words, and a maximum of about 700 words.

Regarding the professionalism of the stimulus materials, my best practice is that it requires some practice to write an early concept narrative. I described earlier that narratives are inexpensive and easy to make, but I need to add that some learning is desired. One narrative in this thesis was co-written by a professional writer and served as a learning experience. The other narratives utilized in this thesis were a mix of student, firm, and my collaborative writing efforts. If multiple concepts would be tested against each other, I would consistently use the same writing style and follow the traditional storyline for every product narrative. The same would be true for the other story elements, such as the protagonist and visuals.

To conclude the guidelines, I would like to emphasize that narrative particularity, ambiguity, and subjectivity are part of the power of narratives for NPD. In design, these factors allow designers to be creative, explore, and come up with new solutions (Erickson 1996). Especially in the fuzzy front end, companies want to know in which direction to go, preferably without losing time and money on betting on the wrong applications. Narratives make it possible for firms to get early insights, adapt quickly and implement changes to run new tests. As such, evaluations resulting from early concept narratives help to shape the direction of new product development.

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APPENDICES

Appendix A: visuals examples

Drawing, photo and animation examples to illustrate the manipulations of visual formats in Chapter 2. Please note that these pictures belong to a different early concept narrative than the one used in Chapter 2.

Drawing

Picture

Animation

Appendix B: narrative example

Narrative used in Chapter 4 (translation from Dutch)

Appendix C: narrative example with photos

Narrative (translation from Dutch) with photos used in Chapter 5.

SUMMARY

Although customer input is generally positively related to new product development (NPD) success, it might limit the innovativeness of NPD projects. Projects might become less innovative with input from consumers because they tend to turn really new products down and favor less innovative solutions. Consumers often have limited knowledge about new technologies, are uncertain about the new benefits, and are biased due to their familiarity with existing solutions. Regular concept tests do not provide consumers with sufficient information to enable them to overcome their natural disinclination toward really new products. The presented research in this thesis uses simple and easy to implement narratives to alleviate the negative attitude toward really new products early in the NPD process.

The research in this thesis aims to study the effects of really new stories on consumer understanding and evaluations of really new products in the early phase of the NPD process. More specifically, this research studies the effectiveness of really new stories by 1) assessing the obtained evaluations with narratives, 2) explaining the (positive) effects of narratives in the NPD context, and 3) seeking to examine factors that influence this effectiveness. A really new story is a short story in which a main character is using a new product. The story follows a typical storyline and starts with an introduction of the main character and the setting, continues with product use and outcomes, and closes with leaving the setting.

The research showed that narratives consistently provided more positive evaluations of a really new product compared to bulleted lists (i.e., non-narratives) that described the same really new product. These positive narrative attitudes were similar to

attitudes towards a prototype of the really new product, supporting the validity of narratives for early consumer evaluations. Multiple measures, such as evaluations of the product, interaction, aesthetic, and anticipated ease of use provided similar patterns of results.

Narrative transportation mediated the results of evaluation format manipulations (i.e., narratives vs. non-narratives) on product evaluations. Narrative transportation is a mixture of imagery, feelings and attention. When people read a narrative or watch a movie, they experience the excitement of being transported into the world portrayed in the story. Consumers "connect" with the main character and it feels as if they are the main character in the story, having a surrogate (learning) experience of the product's use. This experience alleviates the disinclination toward really new products, resulting in a positive effect of narratives on consumers' attitudes. Thus, as narrative transportation mediated the observed effects, it was demonstrated to be the underlying process of the more positive narrative results. This mediation result was replicated in multiple studies. Providing further evidence for the positive effects of narrative transportation, non-expert consumers who were highly transported into a narrative showed similar new product understanding compared to experts. Narratives seem to be a learning mechanism for people who might not yet be aware of their need for the new product.

Important factors that have an effect on evaluation of narratives for NPD concept testing are both the kind of protagonist (i.e., the main character in the narrative) and the kind of visuals that are used. In narratives, a protagonist who was dissimilar and dissociative to the reader yielded more negative transportation and product evaluation results than a protagonist who was similar to the reader or a protagonist who was dissimilar but non-dissociative to the reader. However, a dissociative

dissimilar protagonist produced more positive results when explicit instructions to take the perspective of the dissimilar other were given, because such instructions mitigated the negative effect for transportation and resulting product evaluations. Furthermore, narratives with drawings or photos of the really new product were equally effective in transporting the consumer, and both were more effective in transporting the consumer than an animated sequence of the storyline (i.e., a movie of photos in which the interactive elements of the new product were animated). Another study that compared drawn images plus a narrative, drawn images plus a non-narrative, a prototype demonstration, a movie of this demonstration, and a movie of the drawn images extended these visual format findings for narrative transportation and resulting product evaluations. A narrative plus drawn images produced similar results compared to a realistic demonstration of a prototype.

The results of the research in this thesis are interesting for several reasons. On a theoretical level, these results contribute to narrative, social identity and NPD theories. The results are interesting for NPD practice, because narratives offer NPD managers a valid and cost effective customer research technique to test early concepts of really new products. This research technique is suitable for non-expert consumers. Furthermore, the findings of narrative, visual, and protagonist effects on reader reception are broadly relevant for the development and advertising of products and services. The findings could also be applied to the marketing of specific products and services that depend on narration for their promotion and/or consumption (e.g., movie entertainment and books). Furthermore, the results have implications for blogging and online narrative communications. To conclude, at a more general level, the narrative results could be applied to education. Knowledge of the effects of visuals and reader-protagonist

associations could help the development of learning materials that transport. Narrative transportation might help people to experience what they hear or read, which makes make learning more fun and efficient.

SAMENVATTING

Hoewel input van consumenten over het algemeen bijdraagt aan succesvolle ontwikkeling van nieuwe producten, zou het ook innovativiteit in de weg kunnen staan, wat negatieve gevolgen kan hebben op de lange termijn. Projecten zouden minder innovatief kunnen worden met input van eindgebruikers doordat deze consumenten heel nieuwe producten vaak afwijzen en een voorkeur hebben voor minder innovatieve producten. Dit komt veelal doordat deze 'gewone' consumenten een beperkte kennis hebben van nieuwe technologieën, onzeker zijn over de mogelijke voordelen die het heel nieuwe product hen biedt, en bevooroordeeld zijn door de producten die ze al kennen en gebruiken. Gangbare methoden voor het testen van nieuwe productconcepten blijken consumenten vaak niet de gewenste informatie te geven om hun weerstand tegen verandering op te heffen. Het onderzoek in dit proefschrift maakt gebruik van simpele, eenvoudig te implementeren verhalen als methode om vroeg in het productontwikkelingsproces standaard negatieve houding van consumenten tegenover heel nieuwe producten te verminderen.

Het doel van het onderzoek in dit proefschrift is het bestuderen van het effect van heel nieuwe verhalen (really new stories) op het begrip en de evaluatie van heel nieuwe producten vroeg in het productontwikkelingsproces. Om precies te zijn bekijkt het onderzoek de effectiviteit van really new stories door 1) het bepalen van de waarde van evaluaties verkregen met behulp van verhalen, 2) het verklaren van de (positieve) effecten van verhalen, en 3) het bestuderen van factoren die de effectiviteit van verhalen kunnen beïnvloeden. Een really new story is een verhaal waarin iemand een nieuw product aan het gebruiken is. Het verhaal heeft een verhaallijn en begint met een introductie van de

hoofdpersoon en een situatieschets, waarop het gebruik van het product en de uitkomsten van het gebruik volgen.

Het onderzoek in dit proefschrift toonde aan dat verhalende productomschrijvingen positievere evaluaties opleverden van heel nieuwe producten in vergelijking met niet verhalende lijsten die hetzelfde productconcept beschreven. De positieve oordelen met behulp van verhalen waren gelijk aan oordelen verkregen met behulp van een demonstratie van een werkend prototype van het heel nieuwe product. Deze bevinding ondersteunt de validiteit van verhalen ter verkrijging van vroege input van consumenten. Meerdere maten, zoals de evaluatie van het product, de interactie, het uiterlijk en de verwachte eenvoud van het productgebruik leverden gelijke evaluatiepatronen op.

Narratieve transportatie (narrative transportation) medieerde het effect van de manipulatie van de (verhalende versus niet verhalende) productomschrijving op productevaluaties. Narratieve transportatie is een mengeling van verbeelding, gevoelens, en aandacht. Als mensen een verhaal lezen of een film kijken, ervaren ze de spanning van 'vervoerd worden' in de wereld uitgebeeld in het verhaal. Consumenten voelen zich verbonden met de hoofdpersoon, en het voelt alsof zij de hoofdpersoon in het verhaal zijn terwijl ze een surrogaat (leer)ervaring met het gebruik van het product hebben. Deze ervaring vermindert de standaard afkeer van heel nieuwe producten, laat mensen openstaan voor nieuwe producten, wat resulteert in een positief effect van verhalen op de houding van consumenten. Dus, omdat narratieve transportatie de gevonden effecten medieerde, blijkt narrative transportatie het proces te zijn dat de positieve resultaten, verkregen door middel van verhalen, verklaart. Dit mediatieresultaat werd gerepliceerd met meerdere studies. Verder bewijs voor de positieve effecten van

narratieve transportatie liet zien dat consumenten die sterk werden 'vervoerd' in een verhalende tekst evenveel begrip hadden van het nieuwe product in vergelijking met consumenten die meer voorkennis hadden. Verhalen blijken mogelijk een leermechanisme voor mensen die zich nog niet voldoende bewust zijn van een mogelijke behoefte aan het nieuwe product.

Belangrijke factoren die de effectiviteit van verhalen voor concepttesten zouden kunnen beïnvloeden zijn het soort protagonist (hoofdpersoon in een verhaal) en het type ondersteunende afbeeldingen. Deze beide factoren zijn onderzocht in dit proefschrift. Een verhaal met een hoofdpersoon met wie de lezer geen overeenkomsten heeft en met wie de lezer niet geassocieerd wil worden, leverde lagere narratieve transportatie en productevaluaties op dan een verhaal met een hoofdpersoon met wie de lezer geen overeenkomsten heeft, maar met wie de lezer zich wel wil associëren, of dan een verhaal met een hoofdpersoon met wie de lezer wel overeenkomsten heeft. Tevens kwam naar voren dat een hoofdpersoon met wie de lezer geen overeenkomsten heeft en met wie de lezer zich ook niet wil associëren positievere evaluaties opleverde wanneer expliciete instructies werden gegeven om het verhaal te lezen vanuit het perspectief van die hoofdpersoon. Dergelijke instructies beperkten de negatieve gevolgen voor narratieve transportatie en de resulterende productevaluaties. Daarnaast bleken verhalen die ondersteund werden met tekeningen of foto's van het heel nieuwe product voor de consument even effectief wat betreft narratieve transportatie. Ook bleken verhalen met tekeningen en verhalen met foto's bij de consument meer narratieve transportatie op te roepen in vergelijking met een geanimeerd verhaal (in dit geval een film, waarin de interactieve elementen van het nieuwe product waren geanimeerd). Een andere studie, waarin

tekeningen plus een verhaal, tekeningen plus een lijst, een demonstratie van een werkend prototype, een film van deze demonstratie en een film van de tekeningen werden vergeleken, vulde de bevindingen aan wat betreft het effect van afbeeldingen op narratieve transportatie en resulterende productevaluaties. Een verhaal plus tekeningen gaf dezelfde resultaten als een demonstratie van een werkend prototype.

De resultaten van het onderzoek in dit proefschrift zijn interessant om verschillende redenen. Op theoretisch niveau dragen deze resultaten bij aan verhaaltheorieën, sociale identiteittheorie, en productontwikkelingstheorieën. De resultaten zijn ook interessant voor de productontwikkeling in de praktijk, want verhalen bieden productmanagers een valide en kosteneffectieve consumentenonderzoeksmethode om vroege concepten van heel nieuwe producten te testen met (onervaren) consumenten. Tevens zijn de bevindingen van de effecten van verhalen, afbeeldingen, en protagonisten op lezers relevant in brede zin tijdens de ontwikkeling van en voor de promotie van producten of diensten. De bevindingen kunnen ook worden toegepast voor het op de markt brengen van specifieke producten en diensten die van vertelling afhankelijk zijn voor hun promotie en/of consumptie (bijvoorbeeld, films en boeken). Ook hebben de resultaten implicaties voor verhalende online communicatie en blogging. Tot slot, op een meer algemeen niveau kunnen de resultaten worden toegepast op het onderwijs. Kennis van de gevolgen van afbeeldingen bij verhalen en overeenkomsten tussen hoofdpersoon en lezer kan bijdragen aan de ontwikkeling van leermiddelen die narratieve transportatie bewerkstelligen. Narratieve transportatie zou mensen kunnen helpen om te ervaren wat ze horen of lezen, wat het leren leuker en efficiënter kan maken.

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Ellis van den Hende received her Master Degree with honors in Innovation Management at the faculty of Industrial Design Engineering of Delft University of Technology in 2004. After having worked in the industry for a year, she returned to Delft University of Technology and started her Ph.D. project on really new stories and consumer evaluations of really new products in 2005. In 2009, she was hired as an assistant professor of Marketing at the Amsterdam Business School, University of Amsterdam, The Netherlands. She presented her research at several international conferences in marketing and consumer behavior, and published in the Journal of Product Innovation Management, the Journal of Technological Forecasting and Social Change, as well as several peer-reviewed conference proceedings.

List of publications

- Van den Hende, Ellis A. and Jan P.L. Schoormans (forthcoming). The Story is as Good as the Real Thing, Journal of Product Innovation and Management.
- Van den Hende, Ellis A., Jan P.L. Schoormans, Kaj P.N. Morel, Tatiana Lashina, Evert van Loenen, and Erik I. de Boevere (2007). Using Early Concept Narratives to Collect Valid Early Customer Input about Breakthrough Technologies: The Effect of Different Application Visualizations on Transportation, in Technological Forecasting & Social Change, 74, pp. 1773-1781.

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